Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

0055435

01-RCA-429

SEP 07 2001

Ms. B. L. Becker-Khaleel
State of Washington
Department of Ecology
Nuclear Waste Program
1315 W. Fourth Avenue
Kennewick, Washington 99336

Dear Ms. Becker-Khaleel:

HANFORD FACILITY COMMENTS ON THE MODIFICATION F PACKAGE ISSUED FOR PUBLIC COMMENT ON JULY 25, 2001, FOR THE DANGEROUS WASTE PORTION OF THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT FOR THE TREATMENT, STORAGE, AND DISPOSAL (TSD) OF DANGEROUS WASTE, NO. WA7890008967

The U.S. Department of Energy, Richland Operations Office (RL) and Fluor Hanford, Inc. (FHI) are jointly submitting the "Hanford Facility Comments on the Modification Package." The package was issued for Public Comment on July 25, 2001, for the Dangerous Waste Portion of the RCRA Permit for the TSD of Dangerous Waste, No. WA 7890008967.

As a general comment, RL and FHI want to express support regarding the State of Washington Department of Ecology's (Ecology's) proposed structure of the modification package for the 222-S Laboratory Complex. RL and FHI support Ecology's decision to change the permitting structure of operating units in the permit as proposed. Ecology's new proposed structure for the 222-S Laboratory Complex will achieve cost savings in maintaining the permit as well as eliminate potential enforcement ambiguities by eliminating non-enforceable sections of the Hanford Facility permit application being attached to the Hanford Facility RCRA Permit. RL and FHI look forward to implementing this approach in the Hanford Facility RCRA permit for both existing operating units as well as future permit modifications that will add other operating units. RL and FHI also anticipate that the improved permitting structure will play a critical role in streamlining the Hanford Facility RCRA Permit renewal process that begins in 2004.

The attachment includes our comment to the proposed modification as well as a redline/strikeout of our comments and suggestions. We are available to discuss our comments and provide additional clarification and information as needed. Should you have any questions regarding this information, please contact Astrid P. Larsen, RL, on (509) 372-0477.

Joel Hebdon, Director
Regulatory Compliance and Analysis Division
DOE Richland Operations Office

Richard H. Gurske, Director
Environment and Regulation
Fluor Hanford, Inc.

RCA:APL

Attachment:
Hanford Facility Comments on the
Modification Package

cc w/attach:
Administrative Record, H6-08
Ecology NWP Kennewick Library
Environmental Portal, LMSI
HF Operating Record, G1-27
R. J. Landon, BHI
J. H. Richards, CTUIR
M. A. Wilson, Ecology

cc w/o attach:
F. W. Bond, Ecology
L. J. Cusack, Ecology
R. H. Gurske, FHI
A. K. Ikenberry, PNNL
F. Jamison, Ecology
R. Jim, YN
L. E. Ruud, Ecology
D. R. Sherwood, EPA
P. Sobotta, NPT
S. A. Thompson, FHI
J. F. Williams, Jr., FHI

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General Comments	**Requested Action:** Reformat the entire text to appear as a Part III Chapter in the Hanford Facility RCRA Permit, Dangerous Waste Portion. Refer to attached suggestions for a reformatted Chapter. **Comment Justification:** The 222-S Laboratory Complex must appear as a Part III Chapter in the Hanford Facility RCRA Permit to be consistent with previous permitting actions. **Requested Action:** Renumber Attachments AA through JJ as one attachment called Attachment 50. Use the following Chapter numbering instead of numbering AA through JJ. Provide a table of contents for Attachment 50 listing the contents as follows. For an example of this Chapter numbering, refer to the redline/strikeout copy provided as part of this Comment Package. Chapter 1.0 Part A, Form 3, Dangerous Waste Permit Application, Revision 9, March 19, 2001 Chapter 2.0 Unit Description Chapter 3.0 Waste Analysis Plan Chapter 4.0 Process Information Chapter 6.0 Procedures to Prevent Hazards Chapter 7.0 Contingency Plan Chapter 8.0 Personnel Training Chapter 11.0 Closure Plan **Comment Justification:** Using this numbering format is consistent with the Hanford Facility RCRA Permit and eliminates problems with referencing among the Chapters listed previously.
Attachment CC	**Requested Action:** Delete Figure 1-6, and replace with Figure 1-6 provided in the redline/strikeout copy. **Comment Justification:** Replacing Figure 1-6 corrects a graphical error that existed.

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Introduction	**Draft Permit condition as proposed by the Department of Ecology:** **INTRODUCTION** The 222-S Laboratory Complex is located in the 200 West Area of the Hanford Facility. It contains four (4) active Treatment, Storage, and Disposal (TSD) units: the Dangerous and Mixed Waste Storage Area (DMWSA); Room 2-B; Room 4-E, and the 219-S Waste Handling Facility (described in Attachment AA). These TSD units treat and store dangerous and/or mixed waste generated from the 222-S Laboratory Complex analytical service activities and from other waste management units on the Hanford Facility or from offsite generators. This permit sets forth the operating conditions for these TSD units. The Permittee must comply with: • All terms and conditions set forth in this permit and in Attachments AA through JJ; • All applicable state regulations contained in Chapter 173-303 Washington Administrative Code (WAC) and as specified in this permit; and • The applicable federal regulations, including 40 Code of Federal Regulations (CFR) Parts 260 through 266, Part 268, and Part 270 that have been incorporated by reference into Chapter 173-303 WAC, and as specified in this permit. If, and when, this permit and its attachments or regulations conflict, the wording of the permit shall prevail. "Applicable state and federal regulations" are state regulations and statutes in effect on the date of permit issuance and those federal regulations incorporated by reference into these state regulations. **Requested Action:** (1) The introduction 1st paragraph needs to be reformatted and rewritten to read: " The 222-S Laboratory Complex consists of four (4) units; three container management units and a tank system. The units store and treat dangerous and/or mixed waste. This chapter sets forth the operating conditions for this unit." (2) Delete "The Permittee must comply with:" to the end of the introduction and replace with: "The Permittees shall comply with all requirements set forth in Attachment 50, including the conditions specified in Conditions III.9.B through III.9.L. Enforceable portions of the application have been incorporated into Attachment 50 and are identified in the following. All sections, figures, and tables included in these portions also are enforceable, unless stated otherwise." (3) The term "Permittee" needs to be changed to "Permittees." (4) The term "permit issuance" needs to be changed to "permit modification". **Comment Justification:** (1) The introduction text format and style contained in the opening paragraph should be consistent with other Part III chapters contained in the Hanford Facility RCRA Permit, Dangerous Waste Portion. Furthermore, the certified permit application submitted by the Permittees calls out the three container management areas and one tank system as four waste management units within the 222-S Laboratory Complex. Chapter 2.0 of the certified permit application states: "The 222-S Laboratory Complex is an existing TSD unit located in the 200 West Area (Chapter 1.0)." The quoted permit application statement is constructed to be consistent with the definition of "dangerous waste management unit" in WAC 173-303-040, and more importantly, the definition of "unit" in

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	the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) The text requested for deletion duplicates text already contained in the Hanford Facility RCRA Permit, Dangerous Waste Portion. Text addressing these aspects of compliance exists in the Introduction, Standard Condition I.A.1, and General Condition II.L.3. There is no need to duplicate these requirements. The replacement text is based on the text contained for existing Part III units. (3) This comment will not apply to this section if Ecology accepts Comment 2 of this section and avoids creating duplicative text. The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. The use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (4) This comment will not apply to this section if Ecology accepts Comment 2 of this section and avoids creating duplicative text. The permit issuance date for the Hanford Facility RCRA permit is September 27, 1994. The action to incorporate a TSD unit into the existing Hanford Facility RCRA Permit is a permit modification, not a permit issuance.
Definitions	**Draft Permit condition as proposed by the Department of Ecology: DEFINITIONS** **"222-S Laboratory Complex"** refers to the treatment and storage units and/or the geographical area within the control of the 222-S Laboratory Complex management, as defined in the Hanford Facility Dangerous Waste Permit Application, 222-S Laboratory Complex, DOE/RL-91-27. **"222-S Analytical Laboratory"** refers to the concrete structure located within the complex. "Facility" refers to the 222-S Laboratory Complex. **Requested Action:** (1) Move definitions out of Part III and into the list of definitions contained in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) The two-part definition for the 222-S Laboratory Complex needs to be modified to reflect the agreed upon NOD comment resolution. The definition should read: **"222-S Laboratory Complex"** refers to the treatment, storage, and/or disposal unit or the geographical area within the control of the 222-S Laboratory Complex management." (3) Delete the draft definition of Facility. **Comment Justification(s):** (1) Any new draft definitions need to be captured in the existing list of definitions contained in the Hanford Facility RCRA Permit. It is unclear how the list of definitions presented here relates to the list of definitions already contained in the Hanford Facility RCRA Permit (Refer to pages 11 through 13 in Revision 6). The Permittees need to understand how a draft permit modification relates to the existing Hanford Facility RCRA Permit, Dangerous Waste Portion. As proposed, the Permittees must make an assumption regarding Ecology's intent for these definitions. Moving the definitions into the existing list of definitions contained within the Hanford Facility RCRA Permit will eliminate the need to make assumptions. (2) The definition is not listed in the Hanford Facility Dangerous Waste Permit Application, 222-S Laboratory Complex, DOE/RL-91-27, as the draft condition states. It is inappropriate to reference the entire permit application in this definition because the entire permit application document DOE/RL-91-27 is not attached to the permit. The draft change to the definition is consistent with the agreed NOD comment for Chapter 2.0 of the Hanford Facility Dangerous Waste Permit Application, 222-S Laboratory Complex, DOE/RL-91-27. The agreed on NOD comment table was transmitted to Ecology and the Administrative Record on March 8, 2001 (letter number 01-RCA-190). (3) There are two definitions of Facility in the Hanford

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	Facility RCRA Permit. Both of these definitions are consistent with EPA's definitions. It is inappropriate to establish a third definition of facility. Furthermore, there is no basis for Ecology to redefine terms contained in WAC 173-303 and the Hanford Facility RCRA Permit. The Fact Sheet accompanying the proposed modification contained no information concerning draft definitions or conditions that would change existing definitions.
List of Attachments	**Draft Permit condition as proposed by the Department of Ecology:** **A.1 LIST OF ATTACHMENTS** The following listed documents are hereby incorporated, in their entirety, into this permit. These documents are excerpts from the Permittee's Dangerous Waste Permit Application for the 222-S Laboratory Complex (submitted on August 30, 2000) and supplemental documentation (added on October 10, 2000, and March 9, 2001). These incorporated attachments are enforceable by this permit. Attachment AA — Facility Description (Section 2.1 of the Permit Application) Attachment BB — Part A Dangerous Waste Permit Form, Revision 9 Attachment CC — Waste Analysis Plan (Chapter 3.0 and Appendix 3A of the Permit Application) Attachment DD — Container Management (Section 4.1.1, Section 4.2, Figures 4-1, 4-2, and 4-3, and Table 4-1 of the Permit Application) Attachment EE — Dangerous Waste Tanks and Process Equipment (Section 4.1.2, Section 4.3, and Figure 4-4 of the Permit Application) Attachment FF — Inspection Schedules (Section 6.2, and Tables 6-1, 6-2, and 6-3 of the Permit Application) Attachment GG — Prevention (Section 6.3.1.1, Section 6.3.1.2, and Section 6.5 of the Permit Application) Attachment HH — Contingency Plan (Chapter 7.0, Table 7-1, and applicable sections of Appendix 7A of the Permit Application) Attachment II — Personnel Training (Chapter 8.0 and Table 8-1, "222-S Specific Training Matrix" of the Permit Application) Attachment JJ — Closure Plan (Chapter 11.0 of the Permit Application) **Requested Action:** (1) Restructure the numbering of the attachments into one attachment, Attachment 50. Refer to the attached proposed Attachment 50. The Attachments AA-JJ should be renumbered as section numbers consistent with permit application chapters. (2) In the revised Attachment BB appearing as Attachment 50, Chapter 1.0, call out the Part A, Form 3, consist with other Part III chapters to read: "Part A, Form 3, Dangerous Waste Permit Application, Revision 9, March 19, 2001." **Comment Justification:** (1) The Permittees need to understand how a draft permit modification relates to the existing Hanford Facility RCRA Permit. The Permittees must make an assumption regarding Ecology's intent for these attachments when Ecology proposes attachments that do not relate to the numbering or location of existing attachments. Does Ecology intend for these attachments to be standalone conditions within a Part III Chapter or does Ecology intend to add the attachments to the list of attachments in the Hanford Facility RCRA Permit? To avoid these types of questions, the Permittees are suggesting that a new attachment, Attachment 50, is created because it is the next

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	attachment number available under the existing list of attachments in the Hanford Facility RCRA Permit. The Permittees also believe that within Attachment 50, if the overall chapter numbers of the new attachment match the chapter numbers of the permit application, it will be easy for someone to track information between the certified permit application and the new proposed Attachment 50. On the other hand, in general, the Permittees are not concerned about the numbering of section headings within the Attachment 50 chapters. Therefore, with the exception of the contingency planning Attachment 50, Chapter 7.0, where a crosswalk has been proposed, the section numbering typically will not reflect the permit application section number. (2) Calling out the Part A, Form 3, consistent with other Part III units clarifies that the Form 1 is not being incorporated and maintains necessary consistency in the Hanford Facility RCRA Permit. Part A, Form 3's, are the only element of the Hanford Facility Dangerous Waste Part A Permit Application that have been incorporated into Part III Chapters. Even with the new permitting approach taken on this modification, it is important to remain consistent with the portions of the Hanford Facility Part A Permit Application being incorporated into a Part III Chapter.
Condition A.2.	**Draft Permit condition as proposed by the Department of Ecology:** **A.2 STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS** In addition to the conditions in this chapter, the Permittee must comply with all applicable portions of the Dangerous Waste Portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Hanford Facility. **Requested Action:** Change the term "Permittee" to "Permittees". **Comment Justification:** The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion.
Condition A.3	**Draft Permit condition as proposed by the Department of Ecology:** **A.3 PERFORMANCE STANDARDS** The Permittee shall operate and maintain the Facility in a manner to ensure the performance standards in WAC 173-303-283 are met. **Comment(s):** (1) Delete this condition and establish it as a Part II condition on the next modification. (2) Change the term "Permittee" to "Permittees." (3) Change the term "Facility" to "unit".

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	Comment Justification(s): (1) A condition addressing the standards of WAC 173-303-283 is found as a General Condition in other permits within Washington State. It is inappropriate for Ecology to establish conditions with Facility-wide aspects as unit-specific conditions in Part III. On the Hanford Facility, compliance with WAC 173-303-283 is not unique to the 222-S Laboratory Complex. When a condition has general application to the Hanford Facility, the condition should be identified as a Part II condition, not as a Part III condition. (2) This comment will not apply to this section if Ecology accepts Comment 1 of this section. The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (3) This comment will not apply to this section if Ecology accepts Comment 1 of this section. Refer to justification in the definition section for the draft definition of facility. The use of "Facility" is appropriate if the condition is re-proposed in Part II of the Hanford Facility RCRA Permit.
Condition A.4	**Draft Permit condition as proposed by the Department of Ecology:**
Condition A.4.1.	**A.4 GENERAL WASTE MANAGEMENT** A.4.1 The Permittee is authorized to accept, from on-site and off-site generators, the wastes specified in Attachment BB (Part A Permit Forms) as long as the off-site generator is operated by the United States Department of Energy (USDOE) and has a valid State/Environmental Protection Agency (EPA) identification number. **Requested Action:** (1) Change the term "Permittee" to Permittees". (2) Change "Attachment BB (Part A Permit Forms)" to "Attachment 50, Chapter 1.0 (Part A, Form 3)" (3) Delete the restriction to USDOE generated offsite waste so that any offsite waste meeting waste acceptance criteria can be accepted. **Comment Justification:** (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) The requested terminology change is consistent with the format of the proposed Attachment 50 and the Part A, Form 3, being incorporated during this modification. None of the Part A, Form 1s are being incorporated. The Hanford Facility Dangerous Waste Part A Permit Application consists of many Form 1s and Form 3s. (3) WAC 173-303-300, and -370 provide for the receipt of offsite waste without restriction for the source of the offsite generator. The Hanford Facility accepts offsite waste from a variety of offsite sources. Although the sources are primarily from DOE sites, DOE receives waste from some Department of Defense sites (e.g., Navy) pursuant to site treatment plans approved by the State and some commercial waste when DOE Headquarters is asked by the Nuclear Regulatory Commission to accept waste. It is appropriate for the Permittees to receive offsite waste on the Hanford Facility based on several planning documents. For example: The Notice of Availability for the draft *Office of Environmental Management Programmatic Environmental Impact Statement (PEIS)(DOE-EIS-0200)* was published in the *Federal Register* on September 22, 1995. The final PEIS was issued in May 1997. The Transuranic Treatment Record of Decision was approved on January 20, 1998 and was published in the *Federal Register* on January 23, 1998 (63 FR 3629). The Hazardous Waste Treatment Record of Decision was published in the FR on August 5, 1998 (63 FR 41810). The High-Level Waste (HLW)

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Storage Record of Decision was published on August 26, 1999 (64 FR 46661). The Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste Record of Decision was issued on February 18, 2000 (65 FR 10061). The Hanford Facility has been designated as a regional site for receipt of waste from sources outside the Hanford Facility.

The issue of offsite waste acceptance was addressed in the original issuance of the Hanford Facility RCRA Permit. Ecology agreed that the Hanford Facility can accept offsite waste as documented in response to comments documents. In the initial responsiveness summary dated February 2, 1994, Ecology stated in response to a comment on General Condition II.N.1 that:

> *"This Permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. The Permit, in its current for reflects the requirements specified in the regulations."*

And again in the second responsiveness summary dated August 29, 1994, Ecology stated in response to General Comment 2:

> *"It should be noted that the Permit cannot restrict the Permittees' receipt of off-site waste, but it will be used as the mechanism to control its management to ensure protection of human health and the environment."*

As in the initial responsiveness summary, Ecology responded to comments on General Condition II.N.1 in the second responsiveness summary that stated:

> *"This permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. However, the Department agrees that off-site waste cannot be restricted from receipt although this is contingent upon the proper management of the waste. Therefore, this Condition will be modified to more closely reflect the requirements of the Dangerous Waste Regulations.*
>
> *In all likelihood, the Permittees will continue to receive waste from sources outside the Facility. The Department will continue to assess the proper management of this waste, its impact on the management of Facility-generated waste, and the equitable distribution of waste management among other States. Although the Department cannot restrict properly managed waste from off-site, the Department encourages the public to participate in discussions and decisions with the Permittees, State and Federal governments concerning this issue."*

The Hanford Facility has accepted waste from sources outside the Hanford Facility for many decades. The Hanford Facility has an excellent record in the way offsite waste is received and either accepted or rejected. The recent history with Ecology shows that Ecology has been satisfied with the waste acceptance program on the Hanford Facility for receiving containerized waste. Because the regulations allow for the receipt offsite waste and Hanford and there is no apparent basis to impose management restrictions on how waste from sources outside the Hanford Facility should be managed on the Hanford Facility, the Permittees should be allowed to accept such waste.

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Condition A.4.2

Draft Permit condition as proposed by the Department of Ecology:

A.4.2 All dangerous/mixed wastes must be managed only in areas authorized for dangerous/mixed waste management under the conditions of this permit, except as allowed under WAC 173-303-200. The authorized dangerous waste management areas at the 222-S Laboratory Complex are the DMWSAs, the designated portion of Room 2B, Room 4E, and the 219-S Waste Handling Facility.

Requested Action: (1) In the second sentence, change the term "dangerous" to "dangerous/mixed". (2) In the second sentence, change the term "DMWSAs" to "222-S DMWSAs."

Comment Justification(s): (1) Changing the term will make the text consist with the first sentence of the condition. (2) Changing the term will make the text consist with the term used in the permit application.

Condition A.4.3

Draft Permit condition as proposed by the Department of Ecology:

A.4.3 Land Disposal Restricted waste received at the 222-S Laboratory Complex must have a means of meeting Land Disposal Restrictions (LDR) requirements (e.g., storage is allowed solely for the purpose of accumulating such quantities of wastes as necessary to facilitate proper recovery, treatment, or disposal). LDR restricted waste may be received and accumulated at the 222-S Laboratory Complex provided that recovery, treatment, or disposal pathways are identified and scheduled in accordance with Hanford Federal Facility Agreement and Consent Order (HFFACO) milestone M-26 requirements.

Requested Action: (1) Delete the draft condition and replace with: "Land Disposal Restricted mixed waste regulated by 40 CFR 268 managed in the 222-S Laboratory Complex must be managed in compliance with 40 CFR 268.50, Storage Prohibition, (i.e., storage is allowed solely for the purpose of accumulating such quantities of waste as necessary to facilitate proper recovery, treatment, or disposal) or is reported as a mixed waste requiring treatment/disposal in a timeframe documented in accordance with Tri-Party Agreement Milestone M-26 requirements". (2) Delete "accumulated" and replace with "storage".

Comment Justification(s): (1) This condition should be deleted because there is no parallel condition within other Part III units contained in the Hanford Facility RCRA Permit. The provisions of the Tri-Party Agreement Milestone M-26 provisions operate independently of the Hanford Facility RCRA permit. Furthermore, this draft condition conflicts with itself. Alternatively, the Permittees are proposing an alternative that describes how mixed waste managed at the 222-S Laboratory Complex relates to the Tri-Party Agreement M-26 LDR report. As written, the draft condition conflicts because the first sentence says the waste must have a means of meeting the LDR requirements but the second sentence says the waste does not have to have a means. On the Hanford Facility, Ecology has insisted on the scope of materials and mixed waste that are to be reported in the LDR report regardless of whether the storage prohibition is being met. The 222-S Laboratory Complex has reported several items in the annual LDR report independent of the RCRA permitting process. Whether the means exist for meeting the storage prohibition merely determines how the mixed waste is categorized and reported within the annual LDR report. (2) This comment will not apply to this section if Ecology accepts Comment 1 of this

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	section. WAC 173-303-040 defines the term "storage" as *""Storage" means the holding of dangerous waste for a temporary period. "Accumulation" of dangerous waste, by the generator on the site of generation, is not storage as long as the generator complies with the applicable requirements of WAC 173-303-200 and 173-303-201."* The second sentence of this draft condition uses a generator term, "Accumulated". It is inappropriate to regulate generator activities in the Hanford Facility RCRA Permit. The proper term for the permit is "stored", not accumulated. WAC 173-303-600(3)(d) provides that "final facility standards do not apply to: ...a generator accumulating waste onsite in accordance with WAC 173-303-200." There is no basis for imposing permit conditions on generator activities.
Condition A.4.4	**Draft Permit condition as proposed by the Department of Ecology:** A.4.4 Waste may be transferred from the 222-S Laboratory Complex to permitted TSDs only, in accordance with the receiving TSD's waste acceptance criteria. **Comment(s):** Delete this draft condition and replace with: "Waste may be transferred from the 222-S Laboratory Complex TSD unit to permitted TSDs only, in accordance with the receiving TSD units waste acceptance criteria." **Comment Justification:** This draft condition is ambiguous based on the draft definition of the 222-S Laboratory Complex. If the second part of the proposed definition for the 222-S Laboratory Complex is used, a waste managed within the geographical boundary of the 222-S Laboratory Complex could result in generator activities being regulated under the Hanford Facility RCRA Permit. If the first part of the 222-S Laboratory Complex definition is used, this condition is acceptable because a TSD unit must transfer/ship dangerous/mixed waste to another onsite TSD unit or offsite TSD facility. WAC 173-303-600(3)(d) provides that "final facility standards do not apply to: ...a generator accumulating waste onsite in accordance with WAC 173-303-200." There is no basis for imposing permit conditions on generator activities.
Condition A.5.	**Draft Permit condition as proposed by the Department of Ecology:**
Condition A.5.1	**A.5 WASTE ANALYSIS** A.5.1 When laboratory analytical methods are required to designate the waste, the Permittee must ensure that the test procedures listed as acceptable by WAC 173-303-110 and Appendices II and III to 40 CFR Part 261, or approved equivalent methods, are used. **Requested Action:** Change the term "Permittee" to Permittees". **Comment Justification:** The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion.

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Condition A.5.2	**Draft Permit condition as proposed by the Department of Ecology:** A.5.2 The Permittee is responsible for obtaining accurate and complete information for each waste stream. Inaccurate or incomplete waste analysis information provided by the generating site is not a defense for noncompliance by the Permittee with the waste management requirements and conditions in this permit, Chapter 173-303 WAC, and the LDR in 40 CFR Part 268, as incorporated by reference in Chapter 173-303 WAC. **Requested Action:** (1) Delete "Permittee" and replace with Permittees" in both locations. (2) Delete this draft condition and replace with: "The Permittees are responsible for obtaining accurate information for each waste stream. Inaccurate waste analysis information provided by the generating site is not a defense for noncompliance by the Permittee with the waste management requirements and conditions in this permit, WAC 173-303, and the LDR in 40 CFR Part 268, as incorporated by reference in WAC 173-303 WAC. Complete information will be obtained for mixed waste streams accepted in the 219-S Waste Handling Facility in accordance with Attachment 50, Chapter 3.0". **Comment Justification:** (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) The 222-S Laboratory Complex WAP contained in proposed Attachment 50, Chapter 3.0, allows for storage in the container waste management units with only the information necessary for safe storage. Other information is acquired to complete the designation, complete any LDR determinations, or meet the receiving unit's waste acceptance criteria. Complete information only is required for acceptance of mixed waste in the 219-S Waste Handling Facility tank system. The condition as written creates a conflict with the WAP for dangerous and/or mixed waste managed in the three containerized waste management units.
Condition A.6.	**Draft Permit condition as proposed by the Department of Ecology:**
Condition A.6.1	A.6 RECORDKEEPING A.6.1 The Facility Operating Record shall include, but not be limited to the following information: a. Records and results of waste analyses required by Attachment CC and WAC 173-303-380(1)(c) that include, at a minimum: 1. The date(s), exact place(s), and time(s) of sampling or measurements; 2. The name(s) of the individual(s) who performed the sampling or measurements; 3. The date(s) analyses were performed demonstrating that EPA SW-846 holding times were satisfied, and, if applicable, an explanation of why they were not; 4. The name of the individual(s) who performed the analyses; 5. The analytical techniques or methods used, including revision number of the method used;

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6. The analytical results including applicable laboratory flags; and
7. The Quality Assurance/Quality Control (QA/QC) summary.

b. Results of all waste analyses and trial tests (and any other documentation showing compliance with the requirements of permit conditions, including special container provisions for incompatible waste).

c. A log of waste added into the 219-S Waste Handling System so a record of the waste in the tank is known. Each entry must include, at a minimum, the following information:

1. Date and time of waste introduction;
2. Waste stream;
3. Volume of waste added (excluding flush water);
4. Waste designation;
5. Waste source; and
6. Name of worker making addition.

Requested Action: (1) Delete the first sentence of draft Condition A.6.1 and replace with: "The unit-specific portion of the Hanford Facility Operating Record shall include documentation specified in General Condition II.I applicable to the 222-S Laboratory Complex and documentation specified in Attachment 50. In addition, the documentation shall include the following information:" (2) Draft Condition A.6.1.a., delete "Attachment CC" and replace with "Attachment 50, Chapter 3.0". (3) Draft Condition A.6.1.a., delete "that include, at a minimum" and the detail of the information contained in Items 1-7. (4) Draft Condition A.6.1.b., delete "and trial tests". (5) Draft Condition A.6.1.c., delete "...is known. Each entry must include, at a minimum, the following information:" and replace with "can be determined". and delete Items 1-6.

Comment Justification(s): (1) The opening sentence of draft Condition A.6.1 is ambiguous and needs to be rewritten. The phrase "at a minimum" is a phrase that can result in more than one interpretation for compliance. The Permittees request that the draft permit condition is rewritten to reflect recordkeeping requirements. General Condition II.I in the Hanford Facility RCRA Permit is based on WAC 173-303-380 and should be used as the primary basis for recordkeeping. The Permittees understand that portions of II.I apply to unit-specific activities. In addition, the certified permit application contains numerous recordkeeping requirements. Therefore, General Condition II.I and requirements contained in the proposed Attachment 50 bound the universe of documentation requirements with the exception of the three additional draft conditions in this section. Lastly, because the "Facility Operating Record" is the term used to describe the operating record for the Hanford Facility, the terminology needs to be revised to reflect that the draft condition only applies to the unit-specific portion applicable to the 222-S Laboratory Complex. (2) This change will reference the appropriate Chapter of the proposed Attachment 50 format. (3) If Ecology incorporates the comment, the resulting language of the condition will reflect the recordkeeping requirements contained in the regulations. The level of detail of the draft condition is not based in regulations. Through this draft condition as written, Ecology is imposing a level of detail not found in WAC 173-303. Ecology did not provide any rationale for imposing additional requirements for WAP recordkeeping in the modification package. If Ecology incorporates the comment, the Permittees still will need to maintain records that document compliance with the WAP. The specifics of Items 1-7 in the draft condition are inappropriate because: (a) Monitoring and Records requirements in WAC 173-303-810(11) already have been incorporated into the Hanford Facility RCRA

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	Permit at Standard Condition I.E.10, and (b) Condition I.E.10 already establishes applicable requirements. (4) Trial tests are not applicable to 222-S Laboratory Complex operations. The 222-S Laboratory Complex only manages dangerous and/or mixed waste in tanks and containers. (5) The log for the 219-S Waste Handling Facility is a tracking mechanism to facilitate knowing what is in the tanks, not to provide a means to document the requested information. The information draft to be included in the log will create operational burdens for performing waste transfers. Operators will have to duplicate information in the log that is found elsewhere in records contained at the 222-S Laboratory Complex. Lastly, A.6.1.c Item 3 is considered inconsistent with the WAP in Attachment 50, Chapter 3.0. The WAP specifies that the flush water added to the tank is estimated and recorded (Refer to Sections 2.1.2.1 and 2.1.2.3 of the WAP).
Condition A.7.	**Draft Permit condition as proposed by the Department of Ecology:**
Condition A.7.1	**A.7 CLOSURE** A.7.1 One hundred and eighty (180) days prior to closure, the Permittee must submit a Sampling and Analysis Plan and a revised Closure Plan. An Ecology approved Sampling and Analysis Plan, and a revised and approved Closure Plan are due sixty (60) days in advance of the beginning of final closure. **Requested Action:** Delete this condition. **Comment Justification:** WAC 173-303-610(3)(a) establishes the requirements for a closure plan. A sampling and analysis plan is not identified as a closure plan element. Based on the NOD of Deficiency workshops for the 222-S Laboratory Complex, Chapter 11.0 of the certified permit application meets these requirements. There is no requirement in WAC 173-303 and the Hanford Facility RCRA Permit to prepare a sampling and analysis plan as part of a closure plan. Furthermore, the closure plan proposed in Attachment 50, Chapter 11.0 indicates that a sampling and analysis plan most likely will not be needed for clean closure of the container management areas. The only possibility a sampling and analysis plan will be required is for closure of the old CONNEX box location and the 219-S Waste Handling Facility because of potential soil contamination under the concrete vault. The closure plan anticipates this possibility and indicates a sampling and analysis plan will be prepared at the appropriate point during closure once the areas under question can be inspected and cracks in the concrete determined. There is no possible way the Permittees can anticipate how to write a sampling and analysis plan until after closure activities begin. Closure activities are expected to begin at the time of closure of the 222-S Analytical Laboratory, many years from now.
Condition A.7.2	**Draft Permit condition as proposed by the Department of Ecology:** A.7.2 At least forty-five (45) days before initiating closure, the Permittee must provide a Notification of Closure pursuant to requirements in WAC 173-303-610(3)(c). **Comment(s):** Delete this condition. **Comment Justification(s):** This draft condition changes the meaning of WAC 173-303-610(3)(c)(i), that states: *"The owner or operator must notify the department in writing at least sixty days prior to the date on which he expects to begin closure of a surface impoundment, waste pile,*

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	land treatment, or landfill unit, or final closure of a facility with such a unit. The owner or operator must notify the department in writing at least forty-five days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed." The 45-day requirement applies to the Hanford Facility, not to the 222-S Laboratory Complex.
Condition A.7.3	**Draft Permit condition as proposed by the Department of Ecology:** A.7.3 The Permittee must conduct closure according to Permit Attachment JJ as modified by permit closure Conditions A.7.1 through A.7.6. **Requested Action:** (1) Delete "Permittee" and replace with Permittees." (2) Delete "Attachment JJ" and replace with "Attachment 50, Chapter 11.0." (3) Delete reference to other conditions and replace with a statement regarding closure plan modifications: "The closure plan shall be modified according to the provisions of WAC 173-303-610(3)(b)(ii)." **Comment Justification:** (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) The requested terminology change is consistent with the format of the proposed Attachment 50. (3) The regulations at WAC 173-303-610(3)(b)(ii) provide for the circumstances that the closure plan will require modification. Based on the other comments submitted by the Permittees, there is no need to modify the closure plan at this time. The draft permit condition should be amended to reflect the regulatory requirements for closure plan modification.
Condition A.7.4	**Draft Permit condition as proposed by the Department of Ecology:** A.7.4 Ecology may require additional investigation and/or sampling after the Permittee implements the approved Sampling and Analysis Plan if Ecology determines that the sampling and analyses have not adequately demonstrated whether clean closure has been achieved. Such a requirement shall constitute an agency action subject to appeal under Chapter 43.21B RCW. Additional sampling and analysis may be required for the following reasons: 1. Specialized sample collection or analytical techniques are required to ensure adequate quantitation limits for chemical constituents of concern; or 2. Results indicate the need to analyze for additional constituents at certain locations; or 3. Results indicate additional soil or groundwater sampling is required at certain locations; or 4. Other reasons indicate the Sampling and Analysis Plan has not adequately demonstrated whether clean closure has been achieved. **Requested Action:** Delete this condition. **Comment Justification(s):** Ecology is proposing a condition that duplicates the authority agreed to in Hanford Facility RCRA Permit, Condition II.Y.2.c for TSD units. After the Permittees complete a certification of closure, Condition II.Y.2.c.iii requires: *"Ecology will make a final determination as to whether the work completed under*

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closure and/or post closure care satisfies corrective action, specify any unit-specific corrective action requirements, and incorporate the decision into this Permit in accordance with the Permit Modification Procedures of WAC 173-303-830."

The Hanford Facility RCRA Permit corrective action provisions already provide Ecology the authority to assert closure activities were not sufficient to meet closure requirements.

Furthermore, the closure plan in Attachment 50, Chapter 11.0, already accommodates appropriate closure standards. As stated in the justification for the comment on draft Condition A.7.1, the NOD workshops addressed the needs for sampling and analysis under closure for the waste management units at the 222-S Laboratory Complex. If and when a sampling and analysis plan is required for clean closure of the 222-S Laboratory Complex, Ecology will be involved in the review and approval of the sampling and analysis plan. With Ecology's review and approval authority of any sampling and analysis plan, coupled with the provisions in General Condition II.Y, there is no need for this condition in Part III of the Hanford Facility RCRA Permit.

Condition A.7.5

Draft Permit condition as proposed by the Department of Ecology:

A.7.5 In addition to the activities specified in Permit Attachment JJ, the activities of an independent registered professional engineer to assure that closure is conducted in accordance with the approved plan and requirements of this permit must specifically include, but are not limited to, field observation and record review of the following:

1. Sampling procedures;
2. Locations of soil and concrete sampling to ensure locations were as specified in the Sampling and Analysis Plan;
3. Sample labeling and handling, including chain of custody procedures; and
4. Procedures to decontaminate concrete or metal to meet the Model Toxics Control Act (MTCA) cleanup standards or achieve a "clean debris surface," as specified in 40 CFR § 268.45, Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140.

Requested Action: (1) Delete this draft condition. (2) Delete "Attachment JJ" and replace with "Attachment 50, Chapter 11.0." (3) In Item 4, provide for metal standards by deleting the text "concrete surfaces".

Comment Justification: (1) The regulations already specify what is required by an independent registered professional engineer and this condition. WAC 173-303-610(6) states:

"Certification of Closure. Within sixty days of completion of closure of each dangerous waste management unit (including tank systems and container storage areas), and within sixty days of the completion of final closure, the owner or operator must submit to the department by registered mail, a certification that the dangerous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the department upon request until it releases the owner or operator from the financial assurance requirements for closure under WAC 173-303-620(4)."

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	Based on this regulation, this draft condition would impose additional requirements for closure not specified in regulation or the Hanford Facility RCRA Permit. The Hanford Facility is not subject to financial assurance requirements in WAC 173-303-620. Although the documentation is tied to relieving the owner or operator of financial assurance obligations, the Permittees always have provided Ecology with documentation requested to support a closure certification. The independent registered professional engineer must retain the flexibility to review the information he/she deems is necessary. If the independent registered professional engineer has the information dictated to him/her that must be reviewed, the cost of closure only can increase. There have been many closures completed on the Hanford Facility following the issuance of the Hanford Facility RCRA Permit (Refer to Part V of the Permit). The Permittees are unaware of circumstances during these closure activities that would warrant the draft condition for any TSD unit. The closures completed to date have dealt with container storage areas and tank systems very similar to the ones being permitted within the 222-S Laboratory Complex.. Therefore, the Permittees submit that the draft condition should be deleted. (2) This comment will not apply to this section if Ecology accepts Comment 1 of this section. The requested terminology change is consistent with the format of the draft Attachment 50. (3) This comment will not apply to this section if Ecology accepts Comment 1 of this section. Concrete standards are inappropriate for metal surfaces. Appropriate closure standards already are specified in the closure plan.
Condition A.7.6.	**Draft Permit condition as proposed by the Department of Ecology:** A.7.6 Documentation supporting the independent registered professional engineer's certification of closure must be submitted to Ecology with the closure certification required by WAC 173-303-610(6). In addition to the items in Attachment JJ, the documentation must include: 1. Lab and field data; 2. A report that summarizes closure activities; 3. A copy of all field notes taken by the registered professional engineer; and 4. A copy of all radiological contamination survey results. **Requested Action:** (1) Delete this draft condition. (2) Change "Attachment JJ" to "Attachment 50, Chapter 11.0." **Comment Justification(s):** (1) For a discussion concerning the requirements for TSD closure certifications, refer to justification provided in the comment to draft Condition A.7.5. As an addition concern under this draft condition, in Item 4, Ecology has asserted control over radionuclides. It is inappropriate for a state to unilaterally assert authority over radioactive materials. Source, special nuclear, and byproduct materials specifically are excluded from the definition of solid waste set forth at RCRA 42 U.S.C. § 6903(27); also refer to 42 U.S.C. § 6905(a). The Atomic Energy Act; U.S. Department of Energy's Byproduct Rule (10 CFR 962); the U.S. Environmental Protection Agency Notice Regarding State Authorization [(51 Fed. Reg. 24504 (July 3, 1986)]; U.S. Environmental Protection Agency Notice on Clarification of Interim Status Qualification Requirements for the Hazardous Components of Radioactive Mixed Waste [(53 Fed. Reg. 37045 (September 23, 1988)]; the State's recognition of possible preemption in its Hazardous

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	Waste Management Act, Revised Code of Washington 70.105.109; the limitations of the waiver of sovereign immunity in Section 6001 of the RCRA to materials within the RCRA definition of solid waste (thereby excluding source, special nuclear, and byproduct materials); and the Tri-Party Agreement. Therefore, the Permittees submit that this draft condition be deleted. (2) This comment will not apply to this section if Ecology accepts Comment 1 of this section. The requested terminology change is consistent with the format of the draft Attachment 50.
Condition A.8.	**Draft Permit condition as proposed by the Department of Ecology:** **A.8 DESIGN AND OPERATION OF THE FACILITY** The Permittee shall provide copies of Engineering Change Notices (ECNs) affecting the 219-S Waste Handling Facility to Ecology within five (5) working days of initiating the ECN. Ecology will review all ECNs modifying the 219-S Waste Handling Facility, and inform the Permittee, in writing, within two (2) working days, whether the proposed ECN, when issued, will require a Class 1, 2, or 3 Permit Modification. If after two (2) working days Ecology has not responded, it will be deemed as acceptance of the ECN by Ecology. **Requested Action:** (1) Delete this draft condition. (2) Delete "Permittee" and replace with Permittees." **Comment Justification:** (1) This draft condition is unnecessary because Hanford Facility RCRA Permit conditions contained within Condition II.L, Design and Operation of the Facility, are adequate to address changes to TSD units and Standard Condition I.E.7, Proper Opertation and Maintenance, addresses operations of the TSD unit. This draft condition expands the existing requirements contained in II.L by requiring ECNs affecting the 219-S Waste Handing Facility to be submitted to Ecology. Condition II.L.2 was established in the original revision of the Hanford Facility RCRA Permit to apply to construction activities. Therefore, the Permittees submit that this draft condition be deleted. (2) This comment will not apply to this section if Ecology accepts Comment 1 of this section. The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion.

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Condition B.1 **Draft Permit condition as proposed by the Department of Ecology:**

Condition B.1.1 B.1 CONTAINER MANAGEMENT AREAS AND ACCUMULATION LIMITS

B.1.1 Subject to conditions in Attachment DD and Containers Permit Conditions B.1 through B.3, the Permittee may place or store containerized dangerous waste only in the individual areas listed below, as they are identified in Figure "222-S Laboratory Complex Container Storage Areas," and Photos "222-S Laboratory Complex Dangerous and Mixed Waste Storage Area," "222-S Laboratory Complex Room 2-B," and "222-S Laboratory Complex Room 4-E" of Attachment BB.

Container Storage Areas	Maximum Storage Capacity
222-S Dangerous and Mixed Waste Storage Area (222-S DMWSA)	24,520 liters For solid and /or liquid dangerous and mixed waste
222-S Analytical Laboratory, Room 2-B	2,500 liters For solid and/or liquid mixed waste
222-S Analytical Laboratory, Room 4-E	1,450 liters For solid and/or liquid mixed waste

Requested Action: (1) Delete "Accumulation" and replace with "Storage" in the section title. (2) Delete "Attachment DD" and replace with "Attachment 50, Chapter 4.0. (3) Renumber references to other draft conditions. (4) Delete "Permittee" and replace with Permittees." (5) Delete "dangerous" and replace with "dangerous and/or mixed" (6) Delete "listed below, as they are" and the delete the table listing container storage areas.

Comment Justification: (1) WAC 173-303-040 defines the term "storage" as *""Storage" means the holding of dangerous waste for a temporary period. "Accumulation" of dangerous waste, by the generator on the site of generation, is not storage as long as the generator complies with the applicable requirements of WAC 173-303-200 and 173-303-201."* The draft condition uses a generator term, "Accumulated". It is inappropriate to regulate generator activities in the Hanford Facility RCRA Permit. The proper term for the permit is "stored", not accumulated. WAC 173-303-600(3)(d) provides that "final facility standards do not apply to: ...a generator accumulating waste onsite in accordance with WAC 173-303-200." There is no basis for imposing permit conditions on generator activities. (2) The requested terminology change is consistent with the format of the proposed Attachment 50. (3) Editorial comment. (4) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (5) The requested change will make the text consistent with the text contained in proposed Attachment 50, Chapter 4.0, for allowable types of waste to be managed in the waste management units. (6) The text requested for deletion duplicates text contained in proposed Attachment 50, Chapter 4.0. Duplicating text in the Hanford Facility RCRA Permit increases the administrative costs of maintaining the Permit.

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Condition B.1.2

Draft Permit condition as proposed by the Department of Ecology:

B.1.2 The Permittee shall only place or store the following dangerous and/or mixed waste in the storage areas listed in Permit Condition B.1.1 for Container Management Areas and Accumulation Limits:

1. Dangerous and/or mixed waste generated by the 222-S Laboratory Complex; or
2. Mixed waste generated at other Hanford Facility locations (off-unit) and mixed waste generated from USDOE off-site facilities, which has been transferred and accepted by the 222-S Laboratory Complex pursuant to the provisions in Attachment CC and this permit, with the purpose of being introduced into the 219-S Waste Handling Facility through Hood 16 in Room 2-B or hot cell drains.
3. The Permittee shall not place or store containerized dangerous and/or mixed waste, accepted by the facility pursuant to incoming wastes procedures in Attachment CC, in any area other than container storage areas as identified in Permit Condition B.1.1 for Container Management Areas and Accumulation Limits.

Requested Action: (1) Delete "Permittee" and replace with Permittees". (2) Renumber references to other draft conditions in both locations. (3) Delete "accumulation" and replace with "storage" in both locations. (4) Delete Item 1 and replace with: "Dangerous and/or mixed waste generated within the 222-S Laboratory Complex geographical area; or" (5) Delete "Attachment CC" replace with "Attachment 50, Chapter 3.0, in both locations. (6) Item 2, delete restriction to USDOE generated offsite waste. (7) Item 3, delete "facility" and replace with "222-S Laboratory Complex."

Comment Justification: (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) Editorial comment. (3) WAC 173-303-040 defines the term "storage" as *""Storage" means the holding of dangerous waste for a temporary period. "Accumulation" of dangerous waste, by the generator on the site of generation, is not storage as long as the generator complies with the applicable requirements of WAC 173-303-200 and 173-303-201."* The draft condition uses a generator term, "Accumulated". It is inappropriate to regulate generator activities in the Hanford Facility RCRA Permit. The proper term for the permit is "stored", not accumulated. WAC 173-303-600(3)(d) provides that "final facility standards do not apply to: ...a generator accumulating waste onsite in accordance with WAC 173-303-200." There is no basis for imposing permit conditions on generator activities. (4) Based on the draft two part definition of the 222-S Laboratory Complex, this change removes the ambiguity from the permit condition. (5) The requested terminology change is consistent with the format of the proposed Attachment 50. (6) WAC 173-303-300, and -370 provide for the receipt of offsite waste without restriction for the source of the offsite generator. The Hanford Facility accepts offsite waste from a variety of offsite sources. Although the sources are primarily from DOE sites, DOE receives waste from some Department of Defense sites (e.g., Navy) pursuant to site treatment plans approved by Washington State, and some commercial waste when DOE-Headquarters is asked by the Nuclear Regulatory Commission to accept waste.

It is appropriate for the Permittees to receive offsite waste on the Hanford Facility based on several planning documents. For example: The Notice of Availability for the draft *Office of Environmental Management Programmatic Environmental Impact Statement*

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(PEIS)(DOE-EIS-0200) was published in the *Federal Register* on September 22, 1995. The final PEIS was issued in May 1997. The Transuranic Treatment Record of Decision was approved on January 20, 1998 and was published in the *Federal Register* on January 23, 1998 (63 FR 3629). The Hazardous Waste Treatment Record of Decision was published in the FR on August 5, 1998 (63 FR 41810). The High-Level Storage (HLW) Storage Record of Decision was published on August 26, 1999 (64 FR 46661). The Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste Record of Decision was issued on February 18, 2000 (65 FR 10061). The Hanford Facility has been designated as a regional site for receipt of waste from sources outside the Hanford Facility.

The issue of offsite waste acceptance was addressed in the original issuance of the Hanford Facility RCRA Permit. Ecology agreed that Hanford can accept offsite waste as documented in response to comments documents. In the initial responsiveness summary dated February 2, 1994, Ecology stated in response to a comment on General Condition II.N.1 that:

> *"This Permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. The Permit, in its current for reflects the requirements specified in the regulations."*

And again in the second responsiveness summary dated August 29, 1994, Ecology stated in response to General Comment 2:

> *"It should be noted that the Permit cannot restrict the Permittees' receipt of off-site waste, but it will be used as the mechanism to control its management to ensure protection of human health and the environment."*

As in the initial responsiveness summary, Ecology responded to comments on General Condition II.N.1 in the second responsiveness summary that stated:

> *"This permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. However, the Department agrees that off-site waste cannot be restricted from receipt although this is contingent upon the proper management of the waste. Therefore, this Condition will be modified to more closely reflect the requirements of the Dangerous Waste Regulations.*
>
> *In all likelihood, the Permittees will continue to receive waste from sources outside the Facility. The Department will continue to assess the proper management of this waste, its impact on the management of Facility-generated waste, and the equitable distribution of waste management among other States. Although the Department cannot restrict properly managed waste from off-site, the Department encourages the public to participate in discussions and decisions with the Permittees, State and Federal governments concerning this issue."*

The Hanford Facility has accepted waste from sources outside the Hanford Facility for many decades. The Hanford Facility has an excellent record in the way offsite waste is received and either accepted or rejected. The recent history with Ecology shows that Ecology has been satisfied with the waste acceptance program on the Hanford Facility for receiving containerized waste. Because the regulations allow for the receipt offsite waste and on the Hanford Facility and there is no apparent basis to impose management restrictions on how waste from sources outside the Hanford Facility should be managed on the Hanford Facility, the Permittees should be allowed to accept such waste.

(7) Use of the word facility has a specific meaning in the regulations and in the Hanford

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	Facility RCRA Permit. WAC 173-303-040 provides accurate information on how to understand the regulatory meaning of the terms "facility" and "unit". As defined in WAC 173-303-040, a "facility" is "all contiguous land, and structures...for ...dangerous waste." A facility could consist of several treatment, storage, or disposal operational units. By definition, a facility consists of individual units. The terms are not intended to be used interchangeably. There is no basis for Ecology to apply facility requirements at the unit level
Condition B.1.3	**Draft Permit condition as proposed by the Department of Ecology:** B.1.3 The Permittee shall limit the total liters of wastes and other materials to maximum capacities specified for the individual container storage areas listed in Permit Condition B.1.1 for Container Management Areas and Accumulation Limits. **Requested Action:** (1) Delete "Permittee" and replace with Permittees". (2) Delete "wastes and other materials" and replace with "dangerous and/or mixed waste." (3) Renumber references to other draft conditions. (4) Delete "accumulation" replace with "storage". **Comment Justification:** (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) WAC 173-303-010 clearly delineates the purposes of the Dangerous Waste Regulations. All purposes of WAC 173-303 specifically apply to dangerous and extremely hazardous waste. This draft condition would impose restrictions on types of nondangerous waste and non-waste materials that could be stored at the 222-S Laboratory Complex. There is no basis for establishing a permit condition for nondangerous waste and other materials. (3) Editorial comment (4) WAC 173-303-040 defines the term "storage" as *""Storage" means the holding of dangerous waste for a temporary period. "Accumulation" of dangerous waste, by the generator on the site of generation, is not storage as long as the generator complies with the applicable requirements of WAC 173-303-200 and 173-303-201."* The draft condition uses a generator term, "Accumulated". It is inappropriate to regulate generator activities in the Hanford Facility RCRA Permit. The proper term for the permit is "stored", not accumulated. WAC 173-303-600(3)(d) provides that "final facility standards do not apply to: ...a generator accumulating waste onsite in accordance with WAC 173-303-200." There is no basis for imposing permit conditions on generator activities.
Condition B.1.4	**Draft Permit condition as proposed by the Department of Ecology:** B.1.4 All containers, including those that do not contain dangerous/mixed waste (e.g., exempt wastes, treatment chemicals, etc.) in any container storage areas listed in Permit Condition B.1.1 for Container Management Areas and Accumulation Limits shall be counted toward the capacity limits established by Permit Condition B.1.1 for Container Management Areas and Accumulation Limits. For the purpose of determining compliance with capacity limits, every container shall be considered to be full. **Requested Action:** Delete this draft condition and replace with: "Waste quantities (excluding considerations of the container) shall be counted toward the capacity limits established by Permit Condition III.9.B.8.a.1 for Container Management Areas and Storage

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	Limits." **Comment Justification:** The certified permit application was written and the NOD workshops were completed based on the understanding that waste quantities were to be calculated on actual waste volumes. Had the Permittees been aware of Ecology's intentions to permit container storage areas in this manner, the Permittees would have constructed the permit application in a different manner. Because there are no regulatory provisions to calculate capacity volumes in this manner, the Permittees could not have anticipated permitting container storage areas in this fashion. WAC 173-303 requirements, as well as the federal requirements, are based on counting the actual waste volumes being managed. Imposing the requirement to count partially full or empty containers as full containers would be considered inconsistent with how a Part A, Form 3, is prepared on the Hanford Facility. Furthermore, there is no regulatory basis to count either non-dangerous/mixed waste or nonwaste material volumes as part of the dangerous/mixed waste volume capacity.
Condition B.2	**Draft Permit condition as proposed by the Department of Ecology:**
Condition B.2.1	**B.2 CONTAINMENT SYSTEMS** B.2.1. The Permittee shall maintain the integrity of all containment systems for container storage areas. a. The Permittee shall repair cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of containment grate, joints in containment cells, basins, sumps, spill pallets, and coatings. b. Until closure is completed, the Permittee shall maintain the following records of problems described in Permit Condition B.2.1.a. for Containment Systems within the secondary containment systems: 1. Mapping of problem location. 2. Documentation of problem repair, including a description of the method of repair. 3. Dated photographs of area before and after repair. 4. Name and signature of the person completing repair. **Requested Action:** (1) Delete the detail after the 1st sentence of draft Condition B.2.1 (2) Delete "Permittee" and replace with Permittees" in the remaining location. **Comment Justification:** (1) There is no regulatory requirement to have a permit specify the level of detail required by this condition. Hanford Facility RCRA Permit Standard Condition I.E.7, Proper Operation and Maintenance, addresses how to maintain systems associated with dangerous and/or mixed waste management. (2) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion.

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Condition B.3 **Draft Permit condition as proposed by the Department of Ecology:**

Condition B.3.1 **B.3 INSPECTION SCHEDULES AND PROCEDURES**

B.3.1. The Permittee shall inspect the containers for proper packaging, labeling, marking, and waste tracking forms before transfer.

Requested Action: Delete this draft condition and replace with: "The Permittees shall inspect stored containers of dangerous and/or mixed waste according to the schedules identified in Attachment 50, Chapter 6.0".

Comment Justification: Inspections requirements for the 222-S Laboratory Complex were agreed to in the NOD workshops and documented in certified permit application. The proposed Attachment 50, Chapter 6.0, addresses the inspection requirements for stored containers. There are no requirements in WAC 173-303 or the Hanford Facility RCRA Permit for performing the proposed inspection. Even when the Permittees prepare an offsite shipment of dangerous and/or mixed waste, WAC 173-303-190 does not impose such an inspection requirement.

Condition C.1 **Draft Permit condition as proposed by the Department of Ecology:**

Condition C.1.1 **C.1 DANGEROUS AND MIXED WASTE TANK SYSTEMS**

C.1.1 Subject to conditions in Attachment EE and Permit Conditions C.1 through C.5 for Tank Systems, the Permittee may store and/or process mixed wastes in the following tanks in the 219-S Waste Handling Facility (as identified in Figure "222-S Laboratory Complex Tank System Treatment and Storage Area" and Photo "222-S Laboratory Complex, 219-S Waste Handling Facility" of Attachment BB).

Tank	Maximum Capacity
# 101	Storage and treatment tank, 15,000 liters.
# 102	Storage and treatment tank, 15,000 liters.
# 104	Storage and treatment tank, 7,200 liters.

Requested Action: (1) Delete "Permittee" and replace with Permittees". (2) Renumber permit condition references. (3) Delete the phrase "in the following tanks" and delete the table of tanks. (4) Delete "Attachment EE" and replace with "Attachment 50, Chapter 4.0," and delete "Attachment BB" and replace with "Attachment 50, Chapter 1.0."

Comment Justification: (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) Editorial comment. (3) The text requested for deletion duplicates text contained in proposed Attachment 50, Chapter 4.0. Duplicating text in the Hanford Facility RCRA Permit increases the administrative costs of maintaining the Permit. (4) The requested terminology change is consistent with the format of the proposed Attachment 50.

Condition / Comment / Comment Justification

Condition C.1.2

Draft Permit condition as proposed by the Department of Ecology:

C.1.2 The Permittee shall only store or treat the following mixed waste in the 219-S Waste Handling Facility tanks listed in Permit Condition C.1.1 for the Dangerous and Mixed Waste Tank Systems:

1. Mixed waste generated by the 222-S Laboratory Complex; or
2. Mixed waste generated at other Hanford Facility locations (off-unit) or mixed waste generated from USDOE off-site facilities, which has been transferred to and accepted by the 222-S Laboratory Complex pursuant to the provisions in Permit Attachment CC and this permit.
3. The Permittee shall not manage dangerous and/or mixed waste in tanker trucks at the 222-S Laboratory Complex in any area other than the loading and unloading areas.
4. The Permittee shall not store dangerous and/or mixed waste in tanker trucks at the 222-S Laboratory Complex.

Requested Action: (1) Delete "Permittee" and replace with "Permittees" in all three locations. (2) Renumber reference to draft conditions. (3) Delete text in Item 1 and replace with: "Dangerous and/or mixed waste generated within the 222-S Laboratory Complex geographical area; or". (4) In Item 2, delete restriction to USDOE generated offsite waste so that any offsite waste meeting waste acceptance criteria can be accepted. (4) Delete "Attachment CC" and replace with "Attachment 50, Chapter 3.0." (5) Delete Items 3 and 4 and replace with: "The Permittees shall not manage dangerous and/or mixed waste in tanker trucks or other containers within the 222-S Laboratory Complex geographical area other than the loading and unloading areas near the 219-S Waste Handling Facility while the waste is being staged in accordance with Attachment 50, Chapter 4.0."

Comment Justification: (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) Editorial comment. (3) Based on the draft two part definition of the 222-S Laboratory Complex, this change removes the ambiguity from the permit condition. (4) WAC 173-303-300, and -370 provide for the receipt of offsite waste without restriction for the source of the offsite generator. The Hanford Facility accepts offsite waste from a variety of offsite sources. Although the sources are primarily from DOE sites, DOE receives waste from some Department of Defense sites (e.g., Navy) pursuant to site treatment plans approved by Washington State, and some commercial waste when DOE-Headquarters is asked by the Nuclear Regulatory Commission to accept waste.

It is appropriate for the Permittees to receive offsite waste on the Hanford Facility based on several planning documents. For example: The Notice of Availability for the draft *Office of Environmental Management Programmatic Environmental Impact Statement (PEIS) (DOE-EIS-0200)* was published in the *Federal Register* on September 22, 1995. The final PEIS was issued in May 1997. The Transuranic Treatment Record of Decision was approved on January 20, 1998 and was published in the *Federal Register* on January 23, 1998 (63 FR 3629). The Hazardous Waste Treatment Record of Decision was published in the FR on August 5, 1998 (63 FR 41810). The High-Level Waste (HLW) Storage Record of Decision was published on August 26, 1999 (64 FR 46661). The Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste Record of Decision was issued on

Condition / Comment / Comment Justification

February 18, 2000 (65 FR 10061). The Hanford Facility has been designated as a regional site for receipt of waste from sources outside the Hanford Facility.

The issue of offsite waste acceptance was addressed in the original issuance of the Hanford Facility RCRA Permit. Ecology agreed that the Hanford Facility can accept offsite waste as documented in response to comments documents. In the initial responsiveness summary dated February 2, 1994, Ecology stated in response to a comment on General Condition II.N.1 that:

> *"This Permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. The Permit, in its current for reflects the requirements specified in the regulations."*

And again in the second responsiveness summary dated August 29, 1994, Ecology stated in response to General Comment 2:

> *"It should be noted that the Permit cannot restrict the Permittees' receipt of off-site waste, but it will be used as the mechanism to control its management to ensure protection of human health and the environment."*

As in the initial responsiveness summary, Ecology responded to comments on General Condition II.N.1 in the second responsiveness summary that stated:

> *"This permit does contemplate the receipt of off-site wastes at the Hanford Facility. The regulations clearly allow for such activities to occur given certain requirements. However, the Department agrees that off-site waste cannot be restricted from receipt although this is contingent upon the proper management of the waste. Therefore, this Condition will be modified to more closely reflect the requirements of the Dangerous Waste Regulations.*
>
> *In all likelihood, the Permittees will continue to receive waste from sources outside the Facility. The Department will continue to assess the proper management of this waste, its impact on the management of Facility-generated waste, and the equitable distribution of waste management among other States. Although the Department cannot restrict properly managed waste from off-site, the Department encourages the public to participate in discussions and decisions with the Permittees, State and Federal governments concerning this issue."*

The Hanford Facility has accepted waste from sources outside the Hanford Facility for many decades. The Hanford Facility has an excellent record in the way offsite waste is received and either accepted or rejected. The recent history with Ecology shows that Ecology has been satisfied with the waste acceptance program on the Hanford Facility for receiving containerized waste. Because the regulations allow for the receipt offsite waste on the Hanford Facility and there is no apparent basis to impose management restrictions on how waste from sources outside the Hanford Facility should be managed on the Hanford Facility, the Permittees should be allowed to accept such waste.

(4) The requested terminology change is consistent with the format of the proposed Attachment 50. (5) The NOD workshops resulted in agreement on how to address staging of mixed waste in relation to transfers to and from the 219-S Waste Handling Facility. The draft conditions conflict with the language to be consistent with the text contained in the permit application, Section 4.3.4.5 (Attachment 50, Chapter 4) regarding the staging of a tank trailer or other container. By combining the conditions and rewording these as draft, the condition is consistent with Attachment 50, Chapter 4.0.

Condition / Comment / Comment Justification	
Condition C.2	**Draft Permit condition as proposed by the Department of Ecology:**
Condition C.2.1	**C.2 OPERATING REQUIREMENTS** C.2.1 The Permittee shall not place hazardous wastes or treatment reagents in the tank system if they could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail. **Requested Action:** (1) Delete "Permittee" and replace with Permittees". (2) Delete "hazardous" and replace with "mixed". **Comment Justification:** (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) Throughout the permit application and draft conditions, the terms "dangerous and/or mixed" have been used. Because dangerous waste will not be introduced into the 219-S Waste Handling System to maintain the 40 CFR 264, Subpart CC, exemption referenced by WAC 173-303-692, only the term "mixed" should be used in this draft condition.
Condition C.3	**Draft Permit condition as proposed by the Department of Ecology:**
Condition C.3.1	**C.3 SECONDARY CONTAINMENT AND INTEGRITY ASSESSMENTS** C.3.1 Results of the integrity assessments shall be included in the Facility Operating Record until final closure and corrective action are complete and certified. **Requested Action:** Accept. **Comment Justification:** N/A
Condition C.3.2	**Draft Permit condition as proposed by the Department of Ecology:** C.3.2 Any tank system, including its secondary containment system, found to be leaking, or otherwise unfit for service, shall be immediately removed from service and the Permittee shall comply with the requirements of WAC 173-303-640(7). Such a tank system, including its secondary containment system, shall not be returned to service until the Permittee has obtained the required certification. **Requested Action:** Delete "Permittee" and replace with "Permittees" in both locations. **Comment Justification:** The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion.
Condition C.3.3	**Draft Permit condition as proposed by the Department of Ecology:** C.3.3 The Permittee shall maintain the integrity of all containment systems for tank systems: a. The Permittee shall repair cracks, gaps, loss of integrity, deterioration, corrosion or erosion of containment cells, joints in containment cells, and sumps. Repairs shall be completed as soon as practical.

Condition / Comment / Comment Justification

b. Until closure is completed, the Permittee shall maintain the following records of problems described in HFFACO Permit Condition C.3.3.a. within the 219-S Waste Handling Facility.
   1. Mapping of problem location.
   2. Documentation of problem repair, including a description of the method of repair.
   3. Name and signature of the person completing repair.

c. If repeating or persistent problems as described in Permit Condition C.3.3.a. occur in an area of a containment system, then the Permittee shall isolate that area from dangerous and/or mixed waste management activities until the area can be repaired in accordance with WAC 173-303-640(7).

Requested Action: (1) Delete "Permittee" and replace with "Permittees.". (2) Delete draft permit Conditions C.3.3.a through C.3.3.c.

Comment Justification: (1) The two Permittees responsible for the 222-S Laboratory Complex are the U.S. Department of Energy and Fluor Hanford, Inc. Use of the term "Permittees" is consistent with the list of definitions in the Hanford Facility RCRA Permit, Dangerous Waste Portion. (2) There is no regulatory requirement to have a permit specify the level of detail required by this condition. Hanford Facility RCRA Permit Standard Condtion I.E.7, Proper Operation and Maintenance, addresses how to maintain systems associated with dangerous and/or mixed waste management.

CHAPTER 9

~~Draft Permit for The~~222-S Laboratory Complex

~~INTRODUCTION~~

The ~~2~~22-S Laboratory Complex consists of four units; three container management units and a tank system. The units store and treat dangerous and/or mixed waste. This chapter sets forth the operating Conditions for this unit~~The 222-S Laboratory Complex is located in the 200 West Area of the Hanford Facility. It contains four (4) active Treatment, Storage, and Disposal (TSD) units: the Dangerous and Mixed Waste Storage Area (DMWSA); Room 2-B; Room 4-E, and the 219-S Waste Handling Facility (described in Attachment 50AA). These TSD units treat and store dangerous and/or mixed waste generated from the 222-S Laboratory Complex analytical service activities and from other waste management units on the Hanford Facility or from off-site generators. This permit sets forth the operating conditions for thisese TSD units.~~

III.9.A. COMPLIANCE WITH APPROVED PERMIT AND ATTACHMENT 50

The Permittees shall comply with all requirements set forth in Attachment 50, including the Conditions specified in Condition III.9.B through III.9.L. Enforceable portions of the application have been incorporated into Attachment 50 and are identified as follows. All sections, figures, and tables included in these portions also are enforceable, unless stated otherwise.~~The Permittee must comply with: A~~all terms and conditions set forth in this permit and in Attachment 50s AA through JJ; ~~A~~all applicable state regulations contained in Chapter 173-303 Washington Administrative Code (WAC) and as specified in this permit; and; ~~T~~the applicable federal regulations, including 40 Code of Federal Regulations (CFR) Parts 260 through 266, Part 268, and Part 270 that have been incorporated by reference into Chapter 173-303 WAC, and as specified in this permit.

ATTACHMENT 50:

Chapter 1.0 Part A, Form 3, Dangerous Waste Permit Application, Revision 9, March 19, 2001

Chapter 2.0 Unit Description

Chapter 3.0 Waste Analysis Plan

Chapter 4.0 Process Information

Chapter 6.0 Procedures to Prevent hazards

Chapter 7.0 Contingency Plan

Chapter 8.0 Personnel Training

Chapter 11.0 Closure Plan

~~If, and when, this permit and its attachments or regulations conflict, the wording of the permit shall prevail.~~

~~"Applicable state and federal regulations" are state regulations and statutes in effect on the date of permit issuance and those federal regulations incorporated by reference into these state regulations.~~

~~**DEFINITIONS**~~

~~**"222-S Laboratory Complex"** refers to the treatment and storage units and/or the geographical area within the control of the 222-S Laboratory Complex management, as defined in the Hanford Facility Dangerous Waste Permit Application, 222-S Laboratory Complex, DOE/RL-91-27.~~ [Delete-no other units has this-modify and move the definition to the list of definitions]

~~**"222-S Analytical Laboratory"** refers to the concrete structure located within the complex.~~ [Delete-no other unit s has this-move the definition to the list of definitions]

~~**"Facility"** refers to the 222-S Laboratory Complex.~~

~~A. 222-S LABORATORY COMPLEX SPECIFIC CONDITIONS~~

~~A.1 LIST OF ATTACHMENTS~~

~~The following listed documents are hereby incorporated, in their entirety, into this permit. These documents are excerpts from the Permittee's Dangerous Waste Permit Application for the 222-S Laboratory Complex (submitted on August 30, 2000) and supplemental documentation (added on October 10, 2000, and March 9, 2001). These incorporated attachments are enforceable by this permit.~~

~~Attachment AA Facility Description (Section 2.1 of the Permit Application)~~

~~Attachment BB Part A Dangerous Waste Permit Form, Revision 9~~

~~Attachment CC Waste Analysis Plan (Chapter 3.0 and Appendix 3A of the Permit Application)~~

~~Attachment DD Container Management (Section 4.1.1, Section 4.2, Figures 4-1, 4-2, and 4-3, and Table 4-1 of the Permit Application)~~

~~Attachment EE Dangerous Waste Tanks and Process Equipment (Section 4.1.2, Section 4.3, and Figure 4-4 of the Permit Application)~~

~~Attachment FF Inspection Schedules (Section 6.2, and Tables 6-1, 6-2, and 6-3 of the Permit Application)~~

~~Attachment GG Prevention (Section 6.3.1.1, Section 6.3.1.2, and Section 6.5 of the Permit Application)~~

~~Attachment HH Contingency Plan (Chapter 7.0, Table 7-1, and applicable sections of Appendix 7A of the Permit Application)~~

~~Attachment II Personnel Training (Chapter 8.0 and Table 8-1, "222-S Specific Training Matrix" of the Permit Application)~~

~~Attachment JJ Closure Plan (Chapter 11.0 of the Permit Application)~~

III.9.B.~~A.2~~ STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS

In addition to the conditions in this chapter, the Permittees must comply with all applicable portions of the Dangerous Waste Portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Hanford Facility.

III.9.C.~~A.3~~ ~~PERFORMANCE STANDARDS~~

~~The Permittee shall operate and maintain the Facility in a manner to ensure the performance standards in WAC 173-303-283 are met.~~

III.9.D.~~A.4~~ GENERAL WASTE MANAGEMENT

III.9.D.1.~~A.4.1~~ The Permittees ~~is~~are authorized to accept, from on-site and off-site generators, the wastes specified in Attachment 50~~BB~~, Chapter 1.0 (Part A ~~,Permit~~ Forms 3) as long as the off-site generator ~~is operated by the United States Department of Energy (USDOE) and~~ has a valid State/Environmental Protection Agency (EPA) identification number.

III.9.D.2.~~A.4.2~~ All dangerous/mixed wastes must be managed only in areas authorized for dangerous/mixed waste management under the conditions of this permit, except as allowed under WAC 173-303-200. The authorized dangerous/mixed waste management areas of~~at~~ the 222-S Laboratory Complex are the 222-S DMWSAs, the designated portion of Room 2B, and Room 4E, and the 219-S Waste Handling Facility.

~~A.4.3~~ ~~Land Disposal Restricted waste received at the 222-S Laboratory Complex must have a means of meeting Land Disposal Restrictions (LDR) requirements (e.g., storage is allowed solely for the purpose of accumulating such quantities of wastes as necessary to facilitate proper recovery, treatment, or disposal). LDR restricted waste may be received and accumulated at the 222-S Laboratory Complex provided that recovery, treatment, or disposal pathways are identified and scheduled in accordance with Hanford Federal Facility Agreement and Consent Order (HFFACO) milestone M-26 requirements.~~

III.9.D.3.~~A.4.4~~ Waste may be transferred from the 222-S Laboratory Complex TSD unit to permitted TSDs only, in accordance with the receiving TSD's units waste acceptance criteria.

III.9.E.~~A.5~~ WASTE ANALYSIS

III.9.E.1.~~A.5.1~~ When laboratory analytical methods are required to designate the waste, the Permittees must ensure that the test procedures listed as acceptable by WAC 173-303-110 and Appendices II and III to 40 CFR Part 261, or approved equivalent methods, are used.

III.9.E.2.~~A.5.2~~ The Permittees ~~is~~ are responsible for obtaining accurate ~~and complete~~ information for each waste stream. Inaccurate ~~or incomplete~~ waste analysis information provided by the generating site is not a defense for noncompliance by the Permittees with the waste management requirements and conditions in this permit, Chapter 173-303 WAC, and the LDR in 40 CFR Part 268, as incorporated by reference in Chapter 173-303 WAC. Complete information shall be obtained for mixed waste streams accepted in the 219--S Waste Handling Facility in accordance with Attachment 50, Chapter 3.0."

III.9.F.~~A.6~~ RECORDKEEPING

III.9.F.1.~~A.6.1~~ The unit-specific portion of the Hanford Facility Operating Record shall include documentation specified in General Condition II.I applicable to the 222-S Laboratory Complex and documentation specified in Attachment 50. In addition, the documentation shall include~~, but not be limited to~~ the following information:

III.9.F.1.a.~~1.~~ Records and results of waste analyses required by Attachment 50 ~~CC~~, Chapter 3.0, and WAC 173-303-380(1)(c), ~~that include, at a minimum:~~

~~1.The date(s), exact place(s), and time(s) of sampling or measurements;~~
~~2.The name(s) of the individual(s) who performed the sampling or measurements;~~
~~3.The date(s) analyses were performed demonstrating that EPA SW-846 holding times were satisfied, and, if applicable, an explanation of why they were not;~~
~~4.The name of the individual(s) who performed the analyses;~~

~~5.The analytical techniques or methods used, including revision number of the method used;~~

~~6.The analytical results including applicable laboratory flags; and~~

~~7.1.~~ ~~The Quality Assurance/Quality Control (QA/QC) summary.~~

a. ~~b.~~ Results of all waste analyses ~~and trial tests~~ (and any other documentation showing compliance with the requirements of permit conditions, including special container provisions for incompatible waste).

b. ~~c.~~ A log of waste added into the 219-S Waste Handling System so a record of the waste in the tank can be determined, ~~is known. Each entry must include, at a minimum, the following information:~~

~~1.Date and time of waste introduction;~~

~~2.Waste stream;~~

~~3.Volume of waste added (excluding flush water);~~

~~4.Waste designation;~~

~~5.Waste source; and~~

~~6.Name of worker making addition.~~

III.9.G.~~A.7~~ CLOSURE

III.9.G.1.~~A.7.1~~ ~~One hundred and eighty (180) days prior to closure, the Permittee must submit a Sampling and Analysis Plan and a revised Closure Plan. An Ecology approved Sampling and Analysis Plan, and a revised and approved Closure Plan are due sixty (60) days in advance of the beginning of final closure.~~

III.9.G.2.~~A.7.2~~ ~~At least forty-five (45) days before initiating closure, the Permittee must provide a Notification of Closure pursuant to requirements in WAC 173-303-610(3)(c).~~

III.9.G.3.~~A.7.3~~ The Permittees must conduct closure according to Permit Attachment 50~~JJ~~, Chapter 11.0 as modified by ~~p~~Permit closure ~~c~~Conditions III.9.G.1.~~A.7.1~~ through III.9.G.6.~~A.7.6~~. The closure plan shall be modified according to the provisions of WAC 173-303-610(3)(b)(ii).

~~A.7.4~~ ~~Ecology may require additional investigation and/or sampling after the Permittee implements the approved Sampling and Analysis Plan if Ecology determines that the sampling and analyses have not adequately demonstrated whether clean closure has been achieved. Such a requirement shall constitute an agency action subject to appeal under Chapter 43.21B RCW. Additional sampling and analysis may be required for the following reasons:~~

~~III.9.G.4.a.1. Specialized sample collection or analytical techniques are required to ensure adequate quantitation limits for chemical constituents of concern; or~~

~~III.9.G.4.b.2. Results indicate the need to analyze for additional constituents at certain locations; or~~

~~III.9.G.4.c.3. Results indicate additional soil or groundwater sampling is required at certain locations; or~~

~~III.9.G.4.d.4. Other reasons indicate the Sampling and Analysis Plan has not adequately demonstrated whether clean closure has been achieved.~~

~~A.7.5~~ ~~In addition to the activities specified in Permit Attachment 50JJ, Chapter 11.0, the activities of an independent registered professional engineer to assure that closure is conducted in accordance with the approved plan and requirements of this permit must specifically include, but are not limited to, field observation and record review of the following:~~

~~1.Sampling procedures;~~

~~2.Locations of soil and concrete sampling to ensure locations were as specified in the Sampling and Analysis Plan;~~

~~3.Sample labeling and handling, including chain of custody procedures; and~~

~~4.Procedures to decontaminate concrete or metal to meet the Model Toxics Control Act (MTCA) cleanup standards or achieve a "clean debris surface," as specified in 40 CFR § 268.45, Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140.~~

~~A.7.6~~ ~~Documentation supporting the independent registered professional engineer's certification of closure must be submitted to Ecology with the closure certification required by WAC 173-303-610(6). In addition to the items in Attachment 50JJ, Chapter 11.0, the documentation must include:~~

~~1.Lab and field data;~~
~~2.A report that summarizes closure activities;~~
~~3.A copy of all field notes taken by the registered professional engineer; and~~
~~4.A copy of all radiological contamination survey results.~~

~~A.8~~ ~~DESIGN AND OPERATION OF THE FACILITY~~

~~The Permittee shall provide copies of Engineering Change Notices (ECNs) affecting the 219-S Waste Handling Facility to Ecology within five (5) working days of initiating the ECN. Ecology will review all ECNs modifying the 219-S Waste Handling Facility, and inform the Permittee, in writing, within two (2) working days, whether the proposed ECN, when issued, will require a Class 1, 2, or 3 Permit Modification. If after two (2) working days Ecology has not responded, it will be deemed as acceptance of the ECN by Ecology.~~

III.9.H.~~B.~~ CONTAINERS

III.9.H.1.~~B.1~~ CONTAINER MANAGEMENT AREAS AND STORAGE ~~ACCUMULATION~~ LIMITS

III.9.H.1.a.~~B.1.1~~ Subject to conditions in Attachment 50~~DD~~, Chapter 4.0, and Containers, Permit Conditions III.9.H.1.~~B.1~~ through III.9.H.1.d.~~B.3~~, the Permittees may place or store containerized dangerous and/or mixed waste only in the individual areas ~~listed below, as they are~~ identified in Figure "222-S Laboratory Complex Container Storage Areas," and Photos "222-S Laboratory Complex Dangerous and Mixed Waste Storage Area," "222-S Laboratory Complex Room 2-B," and "222-S Laboratory Complex Room 4-E" of Attachment 50~~BB~~, Chapter 1.0.

~~Container Storage Areas~~	~~Maximum Storage Capacity~~
~~222-S Dangerous and Mixed Waste Storage Area (222-S DMWSA)~~	~~24,520 liters For solid and /or liquid dangerous and mixed waste~~
~~222-S Analytical Laboratory, Room 2-B~~	~~2,500 liters For solid and/or liquid mixed waste~~
~~222-S Analytical Laboratory, Room 4-E~~	~~1,450 liters For solid and/or liquid mixed waste~~

III.9.H.1.b.~~B.1.2~~ The Permittees shall only place or store the following dangerous and/or mixed waste in the storage areas listed in Permit Condition III.9.H.1.a.~~B.1.1~~ for Container Management Areas and Storage ~~Accumulation~~ Limits:

1. Dangerous and/or mixed waste generated by the 222-S Laboratory Complex geographical area; or
2. Mixed waste generated at other Hanford Facility locations (off-unit) and mixed waste generated from ~~USDOE~~ off-site facilities, which have~~has~~ been transferred and accepted by the 222-S Laboratory Complex pursuant to the provisions in Attachment 50~~CC~~, Chapter 3.0, and this permit, with the purpose of being introduced into the 219-S Waste Handling Facility through Hood 16 in Room 2-B or hot cell drains.
3. The Permittee shall not place or store containerized dangerous and/or mixed waste, accepted by the 222-S Laboratory Complex ~~facility~~ pursuant to incoming wastes procedures in Attachment 50~~CC~~, Chapter 3.0, in any area other than container storage areas as identified in Permit Condition III.9.H.1.a.~~B.1.1~~ for Container Management Areas and Storage ~~Accumulation~~ Limits.

III.9.H.1.c.~~B.1.3~~ The Permittee shall limit the total liters of dangerous and/or mixed wastes ~~and other materials~~ to maximum capacities specified for the individual container storage areas listed in Permit Condition III.9.H.1.a~~B.1.1~~ for Container Management Areas and Storage ~~Accumulation~~ Limits.

III.9.H.1.d.~~B.1.4~~ Waste quantities (excluding considerations of the container) ~~All containers, including those that do not contain dangerous/mixed waste (e.g., exempt wastes, treatment chemicals, etc.) in any container storage areas listed in Permit Condition III.9.B.8.a.1.B.1.1 for Container Management Areas and Accumulation Limits~~ shall be counted toward the capacity limits established by Permit Condition III.9.B.8.a.1.~~B.1.1~~ for Container Management Areas and Storage ~~Accumulation~~ Limits. ~~For the purpose of determining compliance with capacity limits, every container shall be considered to be full.~~

III.9.I.~~B.2~~ CONTAINMENT SYSTEMS

III.9.I.1.~~B.2.1.~~ The Permittees shall maintain the integrity of all containment systems for container storage areas.

~~1. The Permittee shall repair cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of containment grate, joints in containment cells, basins, sumps, spill pallets, and coatings.~~

2. ~~Until closure is completed, the Permittee shall maintain the following records of problems described in Permit Condition~~ III.9.J.1.a ~~B.2.1.a. for Containment Systems within the secondary containment systems~~:

~~a. Mapping of problem location.~~
~~b. Documentation of problem repair, including a description of the method of repair.~~
~~c. Dated photographs of area before and after repair.~~
~~d. Name and signature of the person completing repair.~~

III.9.J.~~B.3~~ INSPECTION SCHEDULES AND PROCEDURES

III.9.J.1.~~B.3.1.~~ The Permittees shall inspect ~~the~~ stored containers of dangerous and/or mixed waste according to the schedules identified in Attachment 50, Chapter 6.0, ~~for proper packaging, labeling, marking, and waste tracking forms before transfer.~~

III.9.K.~~C.~~ TANK SYSTEMS

III.9.K.1.~~C.1~~ DANGEROUS AND MIXED WASTE TANK SYSTEMS

III.9.K.1.a.~~C.1.1~~ Subject to conditions in Attachment 50~~EE~~, Chapter 4.0 and Permit Conditions III.9.K.1.~~C.1~~ through III.9.K.3.c.~~C.5~~ for Tank Systems, the Permittees may store and/or process mixed wastes ~~in the following tanks~~ in the 219-S Waste Handling Facility (as identified in Figure "222-S Laboratory Complex Tank System Treatment and Storage Area" and Photo "222-S Laboratory Complex, 219-S Waste Handling Facility" of Attachment 50~~BB~~, Chapter 1.0).

~~Tank~~	~~Maximum Capacity~~
~~# 101~~	~~Storage and treatment tank, 15,000 liters.~~
~~# 102~~	~~Storage and treatment tank, 15,000 liters.~~
~~# 104~~	~~Storage and treatment tank, 7,200 liters.~~

III.9.K.1.b.~~C.1.2~~ The Permittees shall only store or treat the following mixed waste in the 219-S Waste Handling Facility tanks listed in Permit Condition III.9.K.1.a.~~C.1.1~~ for the Dangerous and Mixed Waste Tank Systems:

1. Mixed waste generated by the 222-S Laboratory Complex geographical area; or
2. Mixed waste generated at other Hanford Facility locations (off-unit) or mixed waste generated from ~~USDOE~~ off-site facilities, which has been transferred to and accepted by the 222-S Laboratory Complex pursuant to the provisions in Permit Attachment 50, Chapter 3.0, ~~CC~~ and this permit.
3. The Permittees shall not manage dangerous and/or mixed waste in tanker trucks or other containers within the 222-S Laboratory Complex geographical area other than the loading and unloading areas near the 219-S Waste Handling Facility while the waste is being staged in accordance with Attachment 50, Chapter 4.0 ~~The Permittee shall not manage dangerous and/or mixed waste in tanker trucks at the 222-S Laboratory Complex in any area other than the loading and unloading areas.~~
4. ~~The Permittee shall not store dangerous and/or mixed waste in tanker trucks at the 222-S Laboratory Complex.~~

III.9.K.2.~~C.2~~ OPERATING REQUIREMENTS

III.9.K.2.a. ~~C.2.1~~ The Permittees shall not place mixed ~~hazardous~~ wastes or treatment reagents in the tank system if these ~~ey~~ could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

III.9.K.3. ~~C.3~~ SECONDARY CONTAINMENT AND INTEGRITY ASSESSMENTS

III.9.K.3.a. ~~C.3.1~~ Results of the integrity assessments shall be included in the Facility Operating Record until final closure and corrective action are complete and certified.

III.9.K.3.b. ~~C.3.2~~ Any tank system, including its secondary containment system, found to be leaking, or otherwise unfit for service, ~~shall be~~ immediately shall be removed from service and the Permittees shall comply with the requirements of WAC 173-303-640(7). Such a tank system, including its secondary containment system, shall not be returned to service until the Permittees have ~~has~~ obtained the required certification.

III.9.K.3.c. ~~C.3.3~~ The Permittees shall maintain the integrity of all containment systems for tank systems.~~:~~

~~a. The Permittee shall repair cracks, gaps, loss of integrity, deterioration, corrosion or erosion of containment cells, joints in containment cells, and sumps. Repairs shall be completed as soon as practical.~~

~~b. Until closure is completed, the Permittee shall maintain the following records of problems described in HFFACO Permit Condition III.9.L.3.c.1.C.3.3.a. within the 219-S Waste Handling Facility.~~
~~1.Mapping of problem location.~~
~~2.Documentation of problem repair, including a description of the method of repair.~~
~~3.Name and signature of the person completing repair.~~

~~c. If repeating or persistent problems as described in Permit Condition III.9.L.3.c.1.C.3.3.a. occur in an area of a containment system, then the Permittee shall isolate that area from dangerous and/or mixed waste management activities until the area can be repaired in accordance with WAC 173-303-640(7).~~

ATTACHMENT 50

222-S LABORATORY COMPLEX

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CONTENTS

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CONTENTS

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FORM 3	DANGEROUS WASTE PERMIT APPLICATION	I. EPA/State I.D.. No.
		W A 7 8 9 0 0 0 8 9 6 7

FOR OFFICIAL USE ONLY

Application Approved	Date Received (month/ day / year)	Comments

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or If this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. First Application (place an "X" below and provide the appropriate date)

☐ **1. Existing Facility** (See instructions for definition of "existing" facility. Complete item below.)

MO	DAY	YEAR
03	22	1943

*For existing facilities, provide the date (mo/day/yr) operation began or the date construction commenced. (use the boxes to the left)

*The date construction of the Hanford Facility commenced

☐ **2. New Facility** (Complete item below.)

MO	DAY	YEAR

For new facilities, provide the date (mo/day/yr) operation began or is expected to begin

B. Revised Application (Place an "X" below and complete Section I above)

☒ **1. Facility has an interim Status Permit**

☒ **2. Facility has a Final Permit**

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. Process Code – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the codes(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the (Section III-C).

B. Process Design Capacity – For each code entered in column A enter the capacity of the process.

1. Amount – Enter the amount.
2. Unit of Measure – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
STORAGE:		
Container (barrel, drum, etc.)	S01	Gallons or liters
Tank	S02	Gallons or liters
Waste pile	S03	Cubic yards or cubic meters
Surface impoundment	S04	Gallons or liters
	S06	Cubic yards or cubic meters*
DISPOSAL:		
Injection well	D80	Gallons or liters
Landfill	D81	Acre-feet (the volume that would cover one acre to a Depth of one foot) or hectare-meter
Land application	D82	Acres or hectares
Ocean disposal	D83	Gallons per day or liters per day
Surface impoundment	D84	Gallons or liters
TREATMENT:		
Tank	T01	Gallons per day or liters per day
Surface impoundment	T02	Gallons per day or liters per day
Incinerator	T03	Tons per hour or metric tons per hour; gallons per hour or liters per hour
Other (use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Section III-C.)	T04	Gallons per day or liters per day

Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code
Gallons	G	Liters Per Day	V	Acre-Feet	A
Liters	L	Tons Per Hour	D	Hectare-Meter	F
Cubic Yards	Y	Metric Tons Per Hour	W	Acres	B
Cubic Meters	C	Gallons Per Hour	E	Hectares	Q
Gallons Per Day	U	Liters Per Hour	H		

III. PROCESS – CODES AND DESIGN CAPACITIES (continued)

Example for Completing Section III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks; one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line No.	A. Process Code *(from list above)*			B. process Design Capacity				For Official Use Only			
				1. Amount *(Specify)*	2. Unit of Measure *(enter code)*						
X-1	S	0	2	600		G					
X-2	T	0	3	20		E					
1	S	0	2	37,200		L					
2	T	0	1	780		V					
3	S	0	1	28,470		L					
4											
5											
6											
7											
8											
9											
10											

C. Space for additional process codes or for describing other process (code "T04"). For each process entered here include design capacity.

The 222-S Laboratory Complex is located in the 200 West Area of the Hanford Facility and began waste management operations in June of 1951. The 222-S Laboratory Complex consists of four waste management units: 219-S Waste Handling Facility, 222-S Dangerous and Mixed Waste Storage Area, and Rooms 2-B and 4-E.

The maximum process design capacity for tank storage (S02) is 37,200 liters, tank treatment (T01) is 780 liters per day, and for container storage (S01) is 28,470 liters.

IV. DESCRIPTION OF DANGEROUS WASTES

A. Dangerous Waste Number – Enter the digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four-digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. Estimated Annual Quantity - For each listed waste entered in column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. Unit of Measure - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate odes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
Pounds	P	Kilograms	K
Tons	T	Metric Tons	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. Processes

1. Process Codes:

   For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

   For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. Process Description: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

   NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

   1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
   2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
   3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

   Example for completing Section IV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste.

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*			D. Processes				
									1. Process Codes *(enter)*				2. Process Description *(if a code is not entered in D(1))*
X-1	K	0	5	4	900		P		T03	D80			
X-2	D	0	0	2	400		P		T03	D80			
X-3	D	0	0	1	100		P		T03	D80			
X-4	D	0	0	2					T03	D80			*Included with above*

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*	
W A 7 8 9 0 0 0 8 9 6 7	

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*		D. Processes				
								1. Process Codes *(enter)*				2. Process Description *(if a code is not entered in D(1))*
1	D	0	0	1	283,955		K	S02	T01			Storage - Tank/Treatment - Tank
2	D	0	0	2			X	X	X			X
3	D	0	0	3			X	X	X			X
4	D	0	0	4			X	X	X			X
5	D	0	0	5			X	X	X			X
6	D	0	0	6			X	X	X			X
7	D	0	0	7			X	X	X			X
8	D	0	0	8			X	X	X			X
9	D	0	0	9			X	X	X			X
10	D	0	1	0			X	X	X			X
11	D	0	1	1			X	X	X			X
12	D	0	1	8			X	X	X			X
13	D	0	1	9			X	X	X			X
14	D	0	2	2			X	X	X			X
15	D	0	2	8			X	X	X			X
16	D	0	2	9			X	X	X			X
17	D	0	3	0			X	X	X			X
18	D	0	3	3			X	X	X			X
19	D	0	3	4			X	X	X			X
20	D	0	3	5			X	X	X			X
21	D	0	3	6			X	X	X			X
22	D	0	3	8			X	X	X			X
23	D	0	3	9			X	X	X			X
24	D	0	4	0			X	X	X			X
25	D	0	4	1			X	X	X			X
26	D	0	4	3			X	X	X			X
27	W	P	0	1			X	X	X			X
28	W	P	0	2			X	X	X			X
29	W	T	0	1			X	X	X			X
30	W	T	0	2			X	X	X			X
31	F	0	0	1			X	X	X			X
32	F	0	0	2			X	X	X			X
33	F	0	0	3			X	X	X			X
34	F	0	0	4			X	X	X			X
35	F	0	0	5			X	X	X			X
36	F	0	3	9			X	X	X			Included with above.
37	D	0	0	1	48,840		K	S01				Storage - Container
38	D	0	0	2			X	X				X
39	D	0	0	3			X	X				X
40	D	0	0	4			X	X				X
41	D	0	0	5			X	X				X
42	D	0	0	6			X	X				X
43	D	0	0	7			X	X				X
44	D	0	0	8			X	X				X
45	D	0	0	9			X	X				X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
46	D 0 1 0		K	S01	Storage - Container (cont)
47	D 0 1 1		X	X	X
48	D 0 1 2		X	X	X
49	D 0 1 3		X	X	X
50	D 0 1 4		X	X	X
51	D 0 1 5		X	X	X
52	D 0 1 6		X	X	X
53	D 0 1 7		X	X	X
54	D 0 1 8		X	X	X
55	D 0 1 9		X	X	X
56	D 0 2 0		X	X	X
57	D 0 2 1		X	X	X
58	D 0 2 2		X	X	X
59	D 0 2 3		X	X	X
60	D 0 2 4		X	X	X
61	D 0 2 5		X	X	X
62	D 0 2 6		X	X	X
63	D 0 2 7		X	X	X
64	D 0 2 8		X	X	X
65	D 0 2 9		X	X	X
66	D 0 3 0		X	X	X
67	D 0 3 1		X	X	X
68	D 0 3 2		X	X	X
69	D 0 3 3		X	X	X
70	D 0 3 4		X	X	X
71	D 0 3 5		X	X	X
72	D 0 3 6		X	X	X
73	D 0 3 7		X	X	X
74	D 0 3 8		X	X	X
75	D 0 3 9		X	X	X
76	D 0 4 0		X	X	X
77	D 0 4 1		X	X	X
78	D 0 4 2		X	X	X
79	D 0 4 3		X	X	X
80	W T 0 1		X	X	X
81	W T 0 2		X	X	X
82	W P 0 1		X	X	X
83	W P 0 2		X	X	X
84	W P 0 3		X	X	X
85	W 0 0 1		X	X	X
86	W S C 2		X	X	X
87	F 0 0 1		X	X	X
88	F 0 0 2		X	X	X
89	F 0 0 3		X	X	X
90	F 0 0 4		X	X	X
91	F 0 0 5		X	X	X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes		
							1. Process Codes *(enter)*		2. Process Description *(if a code is not entered in D(1))*
92	F	0	0	6		K	S01		Storage - Container (cont)
93	F	0	0	7		X	X		X
94	F	0	0	8		X	X		X
95	F	0	0	9		X	X		X
96	F	0	1	0		X	X		X
97	F	0	1	1		X	X		X
98	F	0	1	2		X	X		X
99	F	0	1	9		X	X		X
100	F	0	2	0		X	X		X
101	F	0	2	1		X	X		X
102	F	0	2	2		X	X		X
103	F	0	2	3		X	X		X
104	F	0	2	6		X	X		X
105	F	0	2	7		X	X		X
106	F	0	2	8		X	X		X
107	F	0	3	9		X	X		X
108	U	0	0	1		X	X		X
109	U	0	0	2		X	X		X
110	U	0	0	3		X	X		X
111	U	0	0	4		X	X		X
112	U	0	0	5		X	X		X
113	U	0	0	6		X	X		X
114	U	0	0	7		X	X		X
115	U	0	0	8		X	X		X
116	U	0	0	9		X	X		X
117	U	0	1	0		X	X		X
118	U	0	1	1		X	X		X
119	U	0	1	2		X	X		X
120	U	0	1	4		X	X		X
121	U	0	1	5		X	X		X
122	U	0	1	6		X	X		X
123	U	0	1	7		X	X		X
124	U	0	1	8		X	X		X
125	U	0	1	9		X	X		X
126	U	0	2	0		X	X		X
127	U	0	2	1		X	X		X
128	U	0	2	2		X	X		X
129	U	0	2	3		X	X		X
130	U	0	2	4		X	X		X
131	U	0	2	5		X	X		X
132	U	0	2	6		X	X		X
133	U	0	2	7		X	X		X
134	U	0	2	8		X	X		X
135	U	0	2	9		X	X		X
136	U	0	3	0		X	X		X
137	U	0	3	1		X	X		X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes		
							1. Process Codes *(enter)*		2. Process Description *(if a code is not entered in D(1))*
138	U	0	3	2		K	S01		Storage - Container (cont)
139	U	0	3	3		X	X		X
140	U	0	3	4		X	X		X
141	U	0	3	5		X	X		X
142	U	0	3	6		X	X		X
143	U	0	3	7		X	X		X
144	U	0	3	8		X	X		X
145	U	0	3	9		X	X		X
146	U	0	4	1		X	X		X
147	U	0	4	2		X	X		X
148	U	0	4	3		X	X		X
149	U	0	4	4		X	X		X
150	U	0	4	5		X	X		X
151	U	0	4	6		X	X		X
152	U	0	4	7		X	X		X
153	U	0	4	8		X	X		X
154	U	0	4	9		X	X		X
155	U	0	5	0		X	X		X
156	U	0	5	1		X	X		X
157	U	0	5	2		X	X		X
158	U	0	5	3		X	X		X
159	U	0	5	5		X	X		X
160	U	0	5	6		X	X		X
161	U	0	5	7		X	X		X
162	U	0	5	8		X	X		X
163	U	0	5	9		X	X		X
164	U	0	6	0		X	X		X
165	U	0	6	1		X	X		X
166	U	0	6	2		X	X		X
167	U	0	6	3		X	X		X
168	U	0	6	4		X	X		X
169	U	0	6	6		X	X		X
170	U	0	6	7		X	X		X
171	U	0	6	8		X	X		X
172	U	0	6	9		X	X		X
173	U	0	7	0		X	X		X
174	U	0	7	1		X	X		X
175	U	0	7	2		X	X		X
176	U	0	7	3		X	X		X
177	U	0	7	4		X	X		X
178	U	0	7	5		X	X		X
179	U	0	7	6		X	X		X
180	U	0	7	7		X	X		X
181	U	0	7	8		X	X		X
182	U	0	7	9		X	X		X
183	U	0	8	0		X	X		X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
184	U 0 8 1		K	S01	Storage - Container (cont)
185	U 0 8 2		X	X	X
186	U 0 8 3		X	X	X
187	U 0 8 4		X	X	X
188	U 0 8 5		X	X	X
189	U 0 8 6		X	X	X
190	U 0 8 7		X	X	X
191	U 0 8 8		X	X	X
192	U 0 8 9		X	X	X
193	U 0 9 0		X	X	X
194	U 0 9 1		X	X	X
195	U 0 9 2		X	X	X
196	U 0 9 3		X	X	X
197	U 0 9 4		X	X	X
198	U 0 9 5		X	X	X
199	U 0 9 6		X	X	X
200	U 0 9 7		X	X	X
201	U 0 9 8		X	X	X
202	U 0 9 9		X	X	X
203	U 1 0 1		X	X	X
204	U 1 0 2		X	X	X
205	U 1 0 3		X	X	X
206	U 1 0 5		X	X	X
207	U 1 0 6		X	X	X
208	U 1 0 7		X	X	X
209	U 1 0 8		X	X	X
210	U 1 0 9		X	X	X
211	U 1 1 0		X	X	X
212	U 1 1 1		X	X	X
213	U 1 1 2		X	X	X
214	U 1 1 3		X	X	X
215	U 1 1 4		X	X	X
216	U 1 1 5		X	X	X
217	U 1 1 6		X	X	X
218	U 1 1 7		X	X	X
219	U 1 1 8		X	X	X
220	U 1 1 9		X	X	X
221	U 1 2 0		X	X	X
222	U 1 2 1		X	X	X
223	U 1 2 2		X	X	X
224	U 1 2 3		X	X	X
225	U 1 2 4		X	X	X
226	U 1 2 5		X	X	X
227	U 1 2 6		X	X	X
228	U 1 2 7		X	X	X
229	U 1 2 8		X	X	X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*											
W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*		D. Processes				
								1. Process Codes *(enter)*				2. Process Description *(if a code is not entered in D(1))*
230	U	1	2	9			K	S01				Storage - Container (cont)
231	U	1	3	0			X	X				X
232	U	1	3	1			X	X				X
233	U	1	3	2			X	X				X
234	U	1	3	3			X	X				X
235	U	1	3	4			X	X				X
236	U	1	3	5			X	X				X
237	U	1	3	6			X	X				X
238	U	1	3	7			X	X				X
239	U	1	3	8			X	X				X
240	U	1	4	0			X	X				X
241	U	1	4	1			X	X				X
242	U	1	4	2			X	X				X
243	U	1	4	3			X	X				X
244	U	1	4	4			X	X				X
245	U	1	4	5			X	X				X
246	U	1	4	6			X	X				X
247	U	1	4	7			X	X				X
248	U	1	4	8			X	X				X
249	U	1	4	9			X	X				X
250	U	1	5	0			X	X				X
251	U	1	5	1			X	X				X
252	U	1	5	2			X	X				X
253	U	1	5	3			X	X				X
254	U	1	5	4			X	X				X
255	U	1	5	5			X	X				X
256	U	1	5	6			X	X				X
257	U	1	5	7			X	X				X
258	U	1	5	8			X	X				X
259	U	1	5	9			X	X				X
260	U	1	6	0			X	X				X
261	U	1	6	1			X	X				X
262	U	1	6	2			X	X				X
263	U	1	6	3			X	X				X
264	U	1	6	4			X	X				X
265	U	1	6	5			X	X				X
266	U	1	6	6			X	X				X
267	U	1	6	7			X	X				X
268	U	1	6	8			X	X				X
269	U	1	6	9			X	X				X
270	U	1	7	0			X	X				X
271	U	1	7	1			X	X				X
272	U	1	7	2			X	X				X
273	U	1	7	3			X	X				X
274	U	1	7	4			X	X				X
275	U	1	7	6			X	X				X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
276	U177		K	S01	Storage - Container (cont)
277	U178		X	X	X
278	U179		X	X	X
279	U180		X	X	X
280	U181		X	X	X
281	U182		X	X	X
282	U183		X	X	X
283	U184		X	X	X
284	U185		X	X	X
285	U186		X	X	X
286	U187		X	X	X
287	U188		X	X	X
288	U189		X	X	X
289	U190		X	X	X
290	U191		X	X	X
291	U192		X	X	X
292	U193		X	X	X
293	U194		X	X	X
294	U196		X	X	X
295	U200		X	X	X
296	U201		X	X	X
297	U202		X	X	X
298	U203		X	X	X
299	U204		X	X	X
300	U205		X	X	X
301	U206		X	X	X
302	U207		X	X	X
303	U208		X	X	X
304	U209		X	X	X
305	U210		X	X	X
306	U211		X	X	X
307	U213		X	X	X
308	U214		X	X	X
309	U215		X	X	X
310	U216		X	X	X
311	U217		X	X	X
312	U218		X	X	X
313	U219		X	X	X
314	U220		X	X	X
315	U221		X	X	X
316	U222		X	X	X
317	U223		X	X	X
318	U225		X	X	X
319	U226		X	X	X
320	U227		X	X	X
321	U228		X	X	X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*										
W	A	7	8	9	0	0	0	8	9	6	7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes		
							1. Process Codes *(enter)*		2. Process Description *(if a code is not entered in D(1))*
322	U	2	3	4		K	S01		Storage - Container (cont)
323	U	2	3	5		X	X		X
324	U	2	3	6		X	X		X
325	U	2	3	7		X	X		X
326	U	2	3	8		X	X		X
327	U	2	3	9		X	X		X
328	U	2	4	0		X	X		X
329	U	2	4	3		X	X		X
330	U	2	4	4		X	X		X
331	U	2	4	6		X	X		X
332	U	2	4	7		X	X		X
333	U	2	4	8		X	X		X
334	U	2	4	9		X	X		X
335	U	2	7	1		X	X		X
336	U	2	7	8		X	X		X
337	U	2	7	9		X	X		X
338	U	2	8	0		X	X		X
339	U	3	2	8		X	X		X
340	U	3	5	3		X	X		X
341	U	3	5	9		X	X		X
342	U	3	6	4		X	X		X
343	U	3	6	7		X	X		X
344	U	3	7	2		X	X		X
345	U	3	7	3		X	X		X
346	U	3	8	7		X	X		X
347	U	3	8	9		X	X		X
348	U	3	9	4		X	X		X
349	U	3	9	5		X	X		X
350	U	4	0	4		X	X		X
351	U	4	0	9		X	X		X
352	U	4	1	0		X	X		X
353	U	4	1	1		X	X		X
354	P	0	0	1		X	X		X
355	P	0	0	2		X	X		X
356	P	0	0	3		X	X		X
357	P	0	0	4		X	X		X
358	P	0	0	5		X	X		X
359	P	0	0	6		X	X		X
360	P	0	0	7		X	X		X
361	P	0	0	8		X	X		X
362	P	0	0	9		X	X		X
363	P	0	1	0		X	X		X
364	P	0	1	1		X	X		X
365	P	0	1	2		X	X		X
366	P	0	1	3		X	X		X
367	P	0	1	4		X	X		X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
368	P 0 1 5		K	S01	Storage - Container (cont)
369	P 0 1 6		X	X	X
370	P 0 1 7		X	X	X
371	P 0 1 8		X	X	X
372	P 0 2 0		X	X	X
373	P 0 2 1		X	X	X
374	P 0 2 2		X	X	X
375	P 0 2 3		X	X	X
376	P 0 2 4		X	X	X
377	P 0 2 6		X	X	X
378	P 0 2 7		X	X	X
379	P 0 2 8		X	X	X
380	P 0 2 9		X	X	X
381	P 0 3 0		X	X	X
382	P 0 3 1		X	X	X
383	P 0 3 3		X	X	X
384	P 0 3 4		X	X	X
385	P 0 3 6		X	X	X
386	P 0 3 7		X	X	X
387	P 0 3 8		X	X	X
388	P 0 3 9		X	X	X
389	P 0 4 0		X	X	X
390	P 0 4 1		X	X	X
391	P 0 4 2		X	X	X
392	P 0 4 3		X	X	X
393	P 0 4 4		X	X	X
394	P 0 4 5		X	X	X
395	P 0 4 6		X	X	X
396	P 0 4 7		X	X	X
397	P 0 4 8		X	X	X
398	P 0 4 9		X	X	X
399	P 0 5 0		X	X	X
400	P 0 5 1		X	X	X
401	P 0 5 4		X	X	X
402	P 0 5 6		X	X	X
403	P 0 5 7		X	X	X
404	P 0 5 8		X	X	X
405	P 0 5 9		X	X	X
406	P 0 6 0		X	X	X
407	P 0 6 2		X	X	X
408	P 0 6 3		X	X	X
409	P 0 6 4		X	X	X
410	P 0 6 5		X	X	X
411	P 0 6 6		X	X	X
412	P 0 6 7		X	X	X
413	P 0 6 8		X	X	X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
414	P 0 6 9		K	S01	Storage - Container (cont)
415	P 0 7 0		X	X	X
416	P 0 7 1		X	X	X
417	P 0 7 2		X	X	X
418	P 0 7 3		X	X	X
419	P 0 7 4		X	X	X
420	P 0 7 5		X	X	X
421	P 0 7 6		X	X	X
422	P 0 7 7		X	X	X
423	P 0 7 8		X	X	X
424	P 0 8 1		X	X	X
425	P 0 8 2		X	X	X
426	P 0 8 4		X	X	X
427	P 0 8 5		X	X	X
428	P 0 8 7		X	X	X
429	P 0 8 8		X	X	X
430	P 0 8 9		X	X	X
431	P 0 9 2		X	X	X
432	P 0 9 3		X	X	X
433	P 0 9 4		X	X	X
434	P 0 9 5		X	X	X
435	P 0 9 6		X	X	X
436	P 0 9 7		X	X	X
437	P 0 9 8		X	X	X
438	P 0 9 9		X	X	X
439	P 1 0 1		X	X	X
440	P 1 0 2		X	X	X
441	P 1 0 3		X	X	X
442	P 1 0 4		X	X	X
443	P 1 0 5		X	X	X
444	P 1 0 6		X	X	X
445	P 1 0 7		X	X	X
446	P 1 0 8		X	X	X
447	P 1 0 9		X	X	X
448	P 1 1 0		X	X	X
449	P 1 1 1		X	X	X
450	P 1 1 2		X	X	X
451	P 1 1 3		X	X	X
452	P 1 1 4		X	X	X
453	P 1 1 5		X	X	X
454	P 1 1 6		X	X	X
455	P 1 1 8		X	X	X
456	P 1 1 9		X	X	X
457	P 1 2 0		X	X	X
458	P 1 2 1		X	X	X
459	P 1 2 2		X	X	X

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number *(enter from page 1)*
W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

Line No.	A. Dangerous Waste No. *(enter code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(enter code)*	D. Processes	
				1. Process Codes *(enter)*	2. Process Description *(if a code is not entered in D(1))*
460	P 1 2 3		K	S01	Storage - Container (cont)
461	P 1 2 7		X	X	X
462	P 1 2 8		X	X	X
463	P 1 8 5		X	X	X
464	P 1 8 8		X	X	X
465	P 1 8 9		X	X	X
466	P 1 9 0		X	X	X
467	P 1 9 1		X	X	X
468	P 1 9 2		X	X	X
469	P 1 9 4		X	X	X
470	P 1 9 6		X	X	X
471	P 1 9 7		X	X	X
472	P 1 9 8		X	X	X
473	P 1 9 9		X	X	X
474	P 2 0 1		X	X	X
475	P 2 0 2		X	X	X
476	P 2 0 3		X	X	X
477	P 2 0 4		X	X	X
478	P 2 0 5		X	X	Included with above.

IV. DESCRIPTION OF DANGEROUS WASTE (continued)

E. Use this space to list additional process codes from Section D(1) on page 3.

V. FACILITY DRAWING Refer to attached drawing(s).

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

VI. PHOTOGRAPHS Refer to attached photograph(s).

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

VII. FACILITY GEOGRAPHIC LOCATION This information is provided on the attached drawings and photos.

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. Name of Facility's Legal Owner	2. Phone Number *(area code & no.)*

3. Street or P.O. Box	4. City or Town	5. St.	6. Zip Code

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name *(print or type)*	Signature	Date Signed
Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office		3/8/01

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name *(Print Or Type)*	Signature	Date Signed
See attachment		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

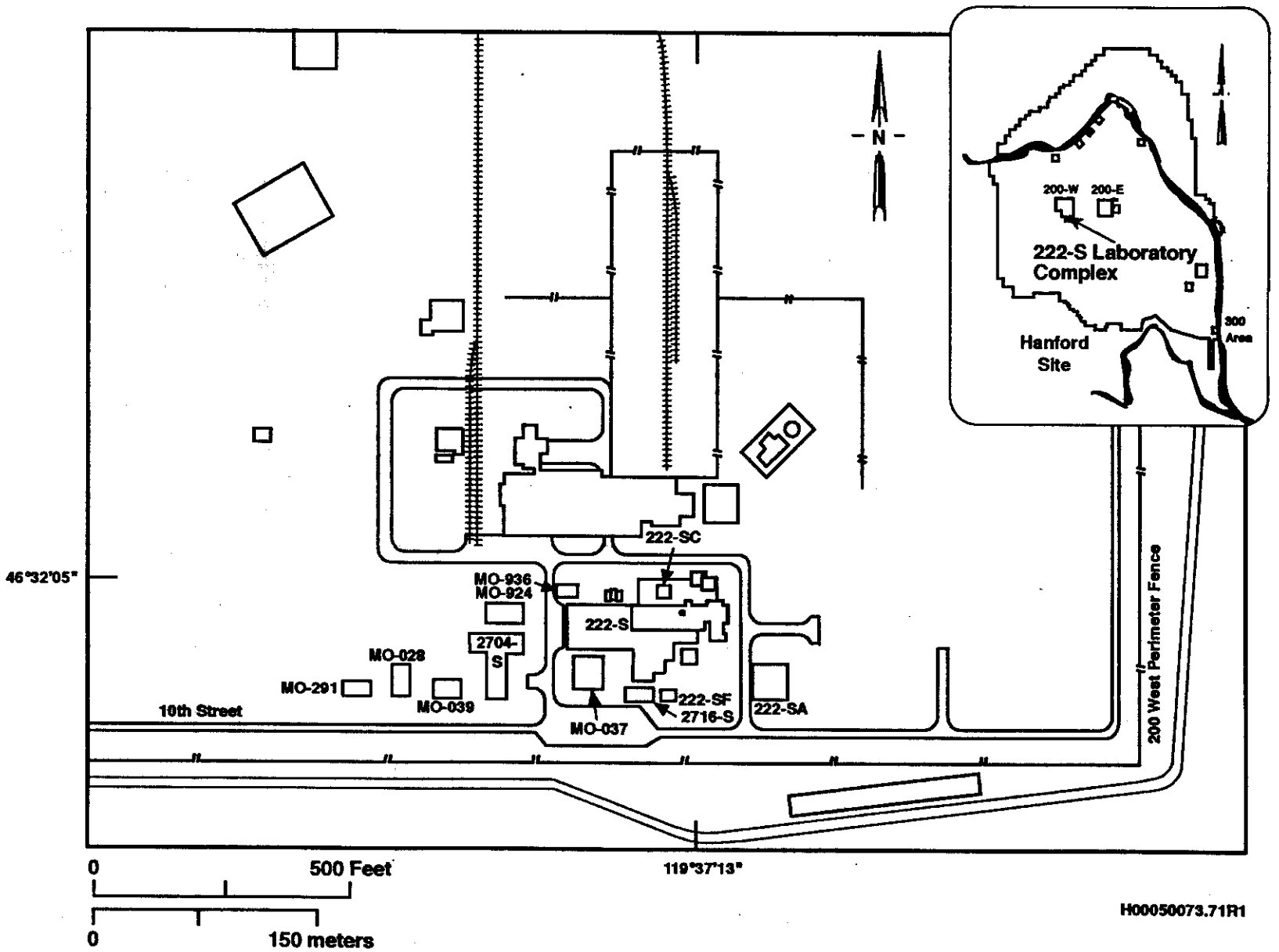
Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

3/8/01
Date Revision 9 Signed

Co-Operator
Ron D. Hanson
President and Chief Executive Officer
Fluor Hanford

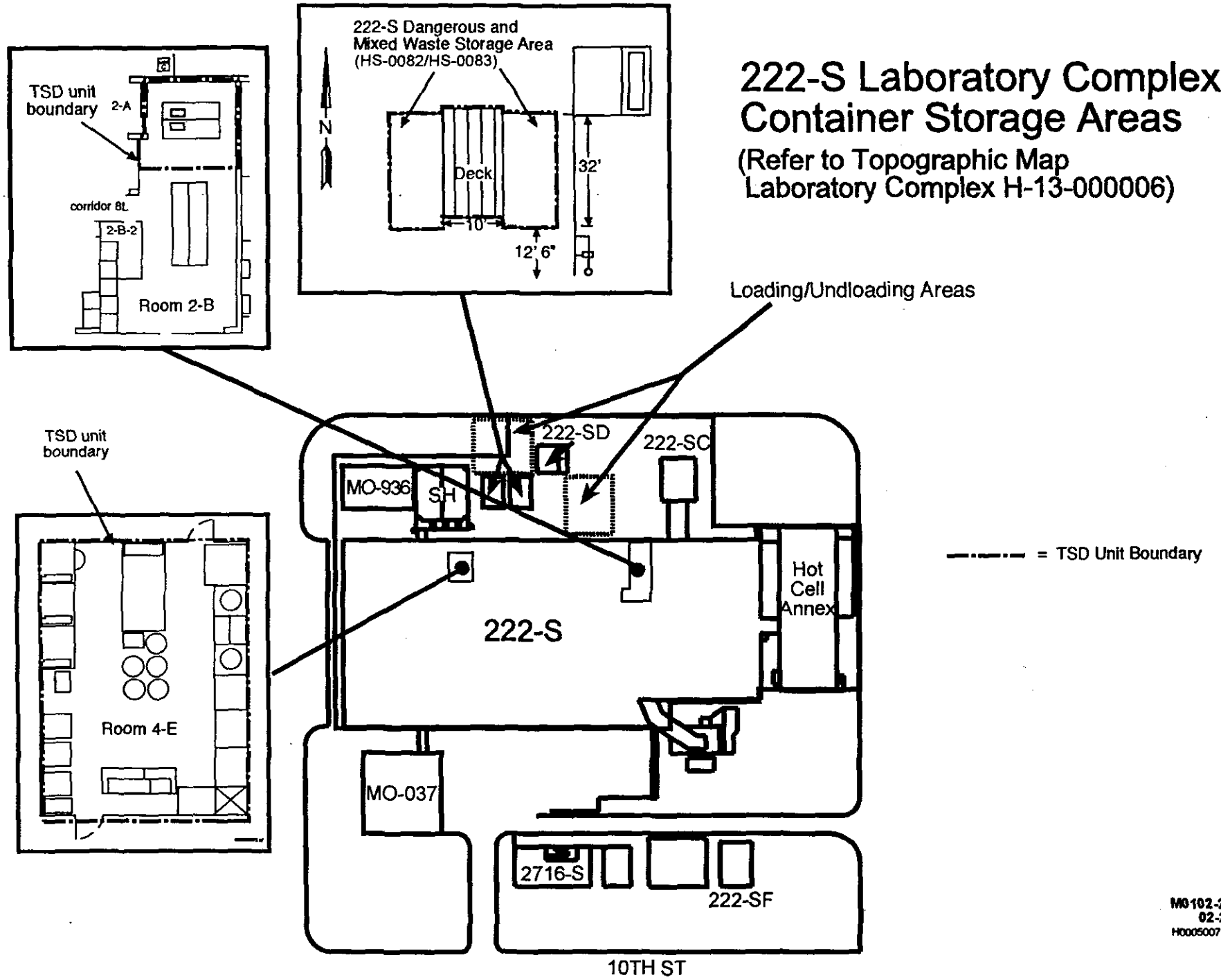
2/23/01
Date Revision 9 Signed

222-S Laboratory Complex and Surrounding Structures Site Plan



222-S Laboratory Complex Container Storage Areas

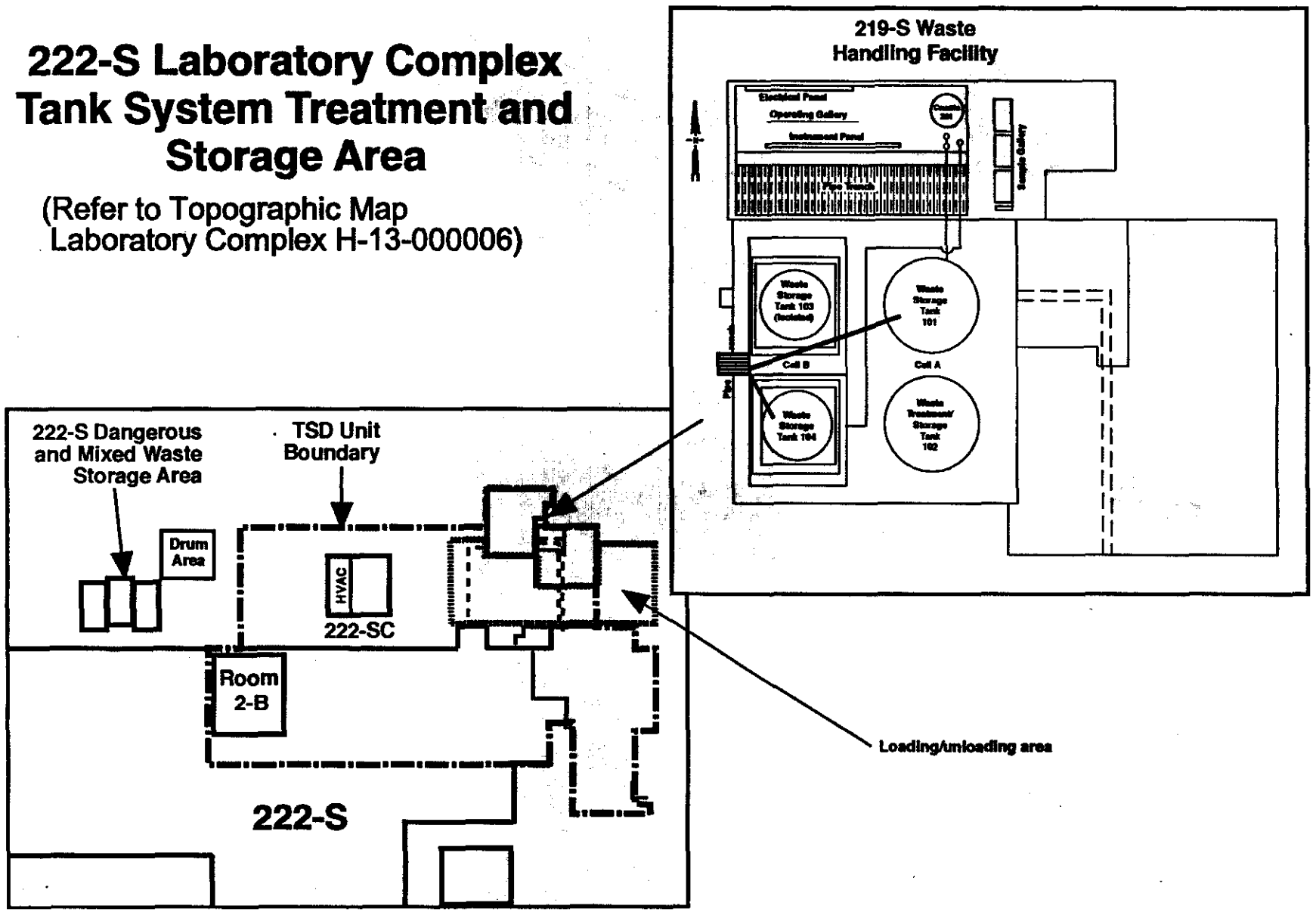
(Refer to Topographic Map Laboratory Complex H-13-000006)



M0102-2.2R1
02-22-01
H00050073.70R3

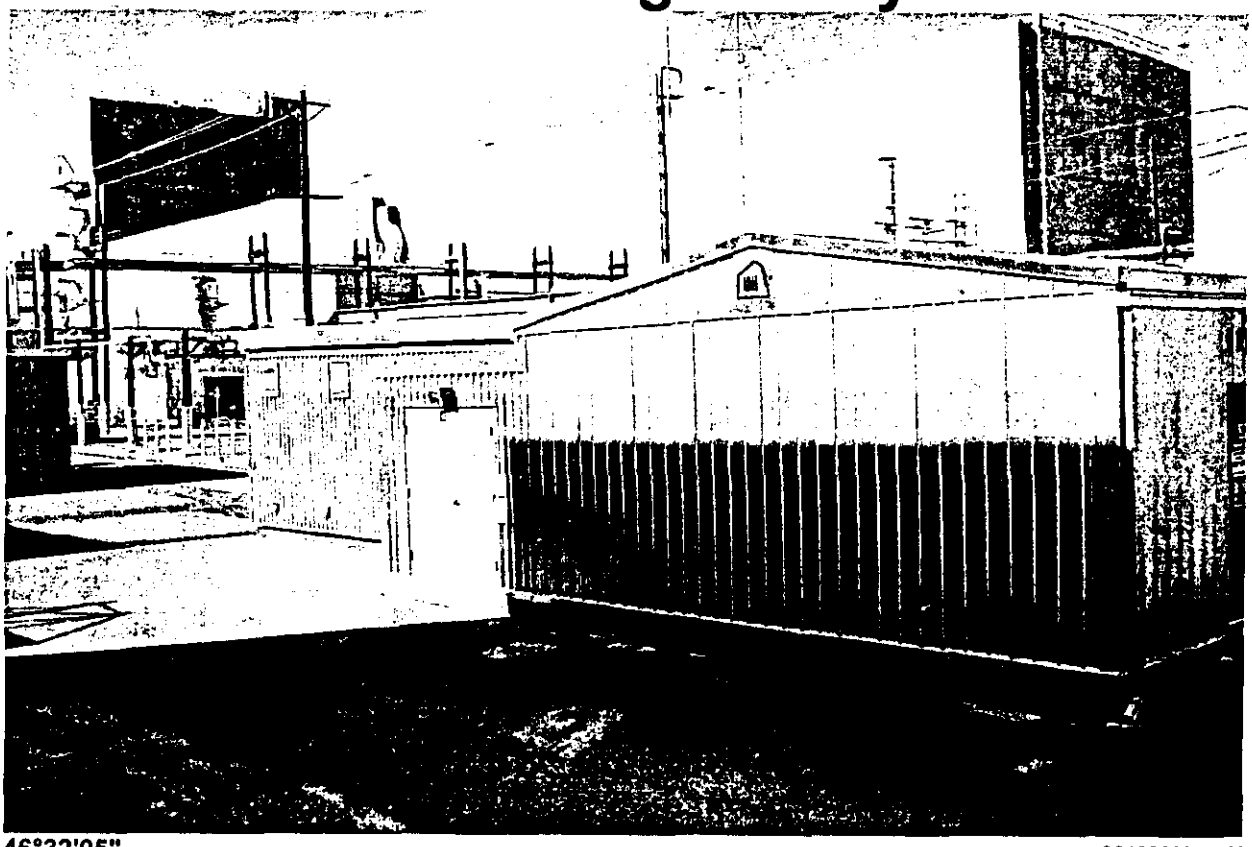
222-S Laboratory Complex Tank System Treatment and Storage Area

(Refer to Topographic Map
Laboratory Complex H-13-000006)



MO102-2.1
2-15-01

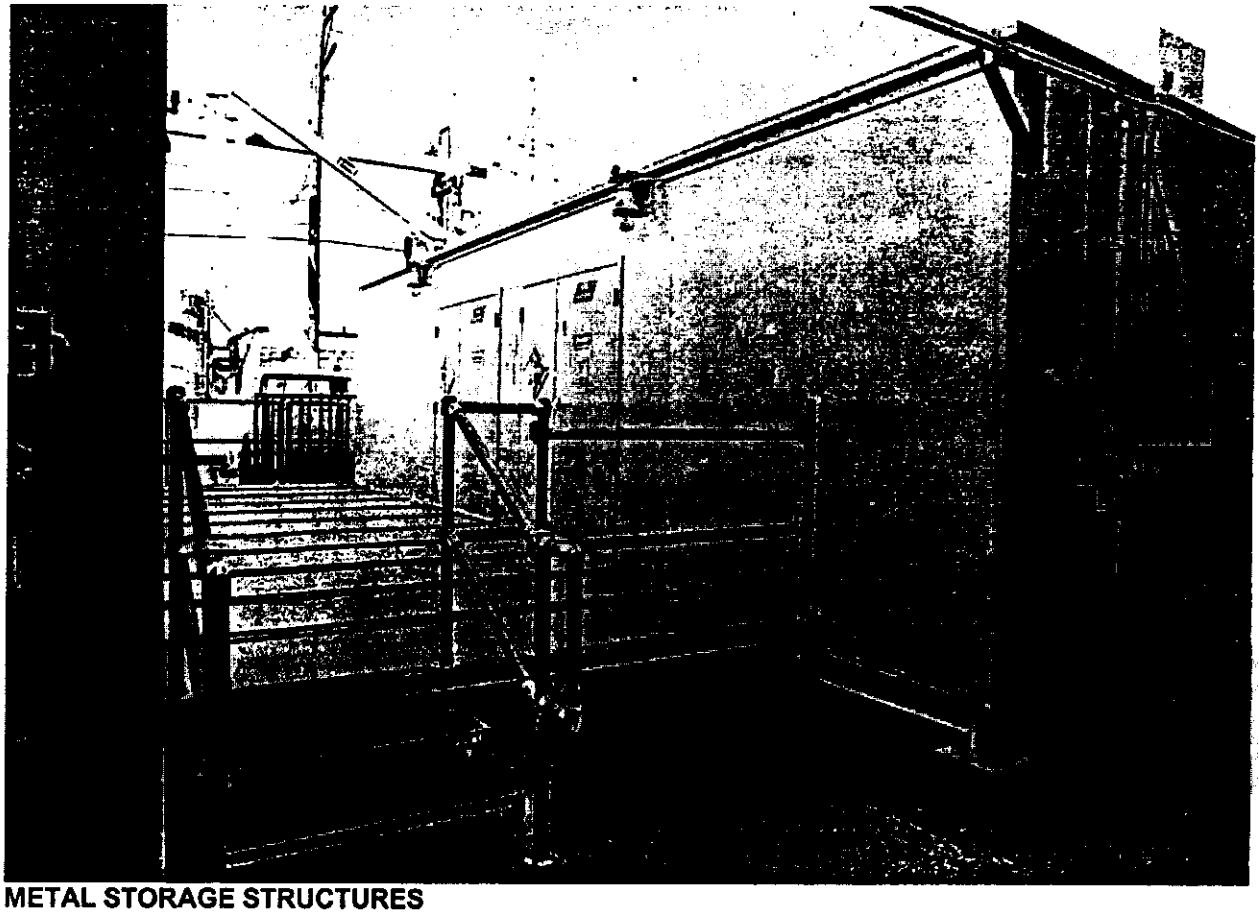
222-S Laboratory Complex
219-S Waste Handling Facility



46°32'05"
119°37'13"

00100005-2CN
(PHOTO TAKEN 2000)

222-S Laboratory Complex Dangerous and Mixed Waste Storage Area

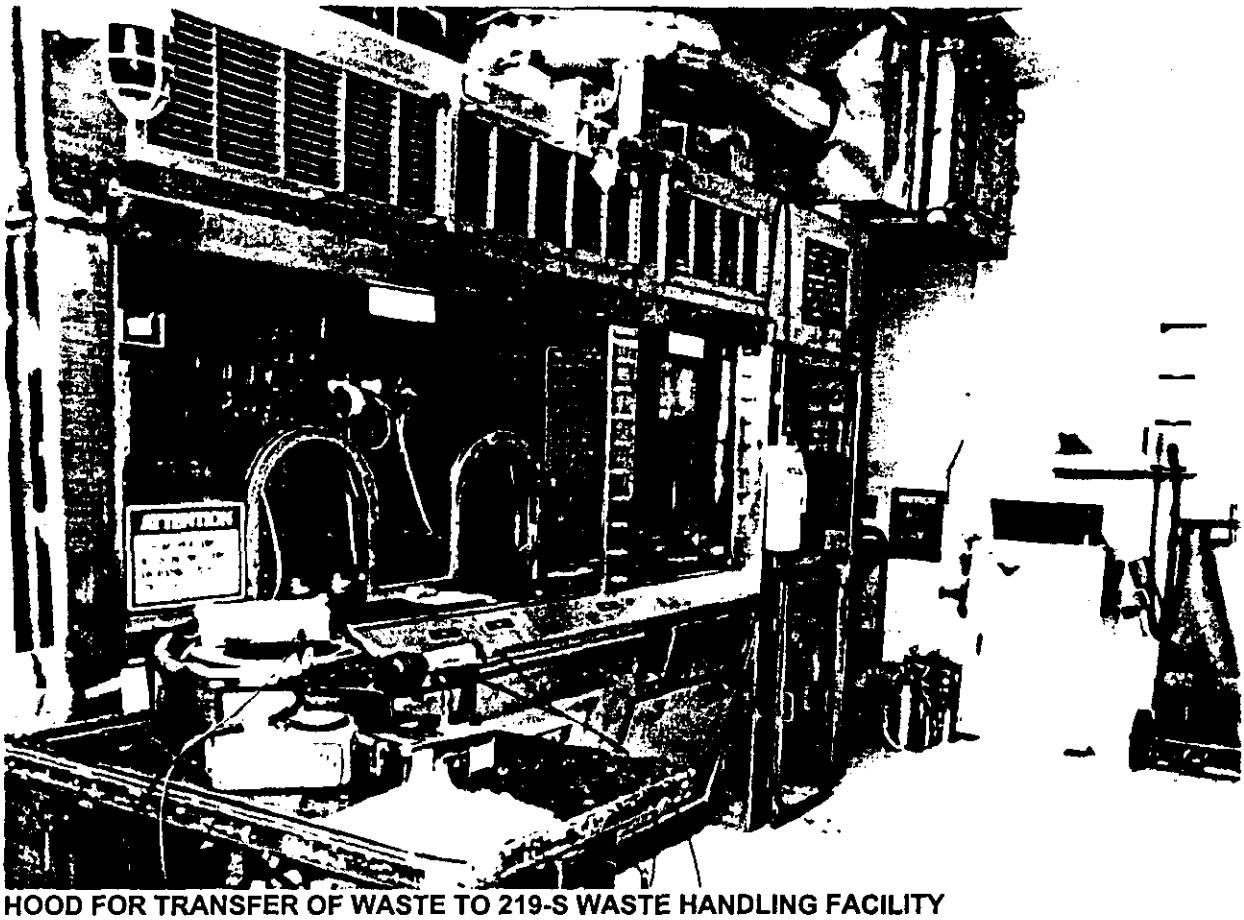


METAL STORAGE STRUCTURES

46°32'05"
119°37'13"

98110210-13.JPG
(PHOTO TAKEN 1998)

222-S Laboratory Complex
Room 2-B



HOOD FOR TRANSFER OF WASTE TO 219-S WASTE HANDLING FACILITY

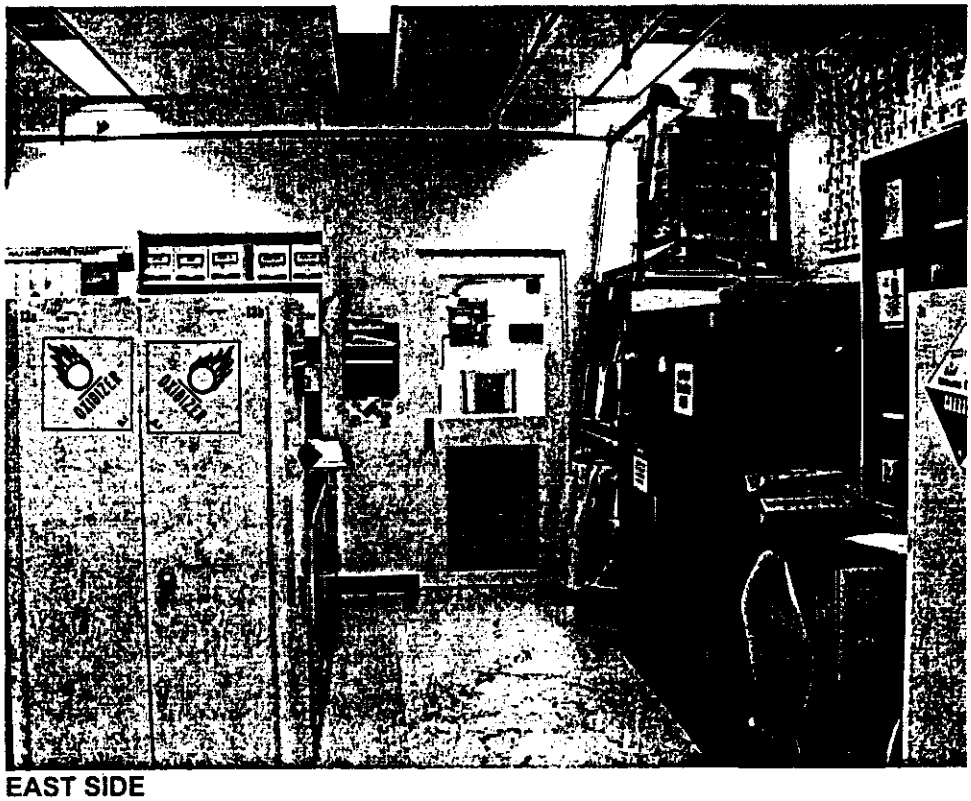
46°32'03"
119°37'15"

97020243-1CN
(PHOTO TAKEN 1997)

222-S Laboratory Complex
Room 4-E

WEST SIDE
46°32'03"
119°37'15"

00060190-6DF
(PHOTO TAKEN 2000)



EAST SIDE
46°32'03"
119°37'15"

00100005-1CN
(PHOTO TAKEN 2000)

CONTENTS

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2.0 UNIT DESCRIPTION

2.1 222-S LABORATORY COMPLEX DESCRIPTION [B-1]

The 222-S Laboratory Complex was constructed in 1950 and 1951 to provide analytical services and support to the Hanford Reduction Oxidation Plant located in the 200 West Area. Through the years, the mission of the 222-S Laboratory Complex has changed. Requirements such as DOE Orders and federal and state regulations also have changed. The 222-S Laboratory Complex operations, structures, and equipment have been updated to meet these changes.

The current mission of the 222-S Analytical Laboratory is to provide quality analytical chemistry services in support of, but not limited to, Hanford Facility waste management units, reprocessing units, environmental monitoring programs, treatability studies, and onsite generating units and offsite generator activities. Waste management unit activities within the 222-S Laboratory Complex include the storage and treatment of dangerous and/or mixed waste from the following waste generated within the 222-S Laboratory Complex:

- Analytical waste resulting from samples
- Discarded chemical products from laboratory reagents
- Waste from chemicals synthesized or created during research activities
- Unused samples
- Maintenance/construction project waste.

The 222-S Laboratory Complex contains the following treatment and/or storage units:

- The 219-S Waste Handling Facility, a tank system treatment and storage unit
- The 222-S Dangerous and Mixed Waste Storage Area (222-S DMWSA), a container storage unit
- Room 2-B, a container storage unit
- Room 4-E, a container storage unit.

Chapter 3.0, Appendix 3A, describes the process with a flow diagram of waste movement. Chapter 4.0 provides detailed process information.

2.1.1 219-S Waste Handling Facility

The 219-S Waste Handling Facility is located northeast of the 222-S Analytical Laboratory Building (refer to Chapter 1.0). The 219-S Waste Handling Facility contains four stainless steel tanks: tanks 101 (15,000 liters), 102 (15,000 liters), 103 (6,000 liters), and 104 (7,200 liters). These tanks are located in a belowground concrete vault (refer to Chapter 1.0). Tanks 101 and 104 are used for primary and backup storage of mixed waste. The mixed waste is transferred from tanks 101 and 104 to tank 102 for treatment and storage before transfer to the DST System.

When the mixed waste is transferred to the DST System, the mixed waste is treated in tank 102 with sodium hydroxide (NaOH) and with sodium nitrite ($NaNO_2$) to meet DST System waste acceptance criteria. This treatment process makes the mixed waste more amenable for storage in the DST System. Tank 103 has been isolated and will remain in place until final closure of the tank system.

2.1.2 222-S Dangerous and Mixed Waste Storage Area

The 222-S DMWSA is located on the north side of the 222-S Analytical Laboratory (refer to Chapter 1.0). The 222-S DMWSA consists of two metal storage structures (refer to Chapter 1.0). The-222-S DMWSA stores various-sized approved containers or other approved packages and overpacks of dangerous and/or mixed waste. The 222-S DMWSA is used for packaging, repackaging, and sampling dangerous and/or mixed waste. The containers are stored at the 222-S DMWSA until transferred to another 222-S Laboratory Complex treatment and/or storage unit, an onsite TSD unit, or to an offsite TSD facility.

2.1.3 Room 2-B

A portion of Room 2-B, located within the 222-S Analytical Laboratory, provides container storage of solid and/or liquid mixed waste (refer to Chapter 1.0) until transferred to another 222-S Laboratory Complex treatment and/or storage unit, an onsite TSD unit, or to an offsite TSD facility. The Room 2-B waste management unit is located in the north section of Room 2-B (Chapter 1.0). The waste management unit in Room 2-B is used for packaging, repackaging, and sampling mixed waste and is isolated from the rest of the room by an accordion gate that prevents unauthorized personnel from entering. Within the Room 2-B waste management unit is Hood 16, which is an introduction point for transfer of liquid mixed waste from containers to the 219-S Waste Handling Facility. Mixed waste exceeding personnel protection radiological levels during transfer are introduced into the 219-S Waste Handling Facility via drains in hot cells instead of Hood 16. Chapter 4.0 provides the additional detail of waste management activities in Room 2-B.

2.1.4 Room 4-E

Room 4-E, located within the 222-S Analytical Laboratory, provides container storage of solid and/or liquid mixed waste (refer to Chapter 1.0) until transferred to another 222-S Laboratory Complex treatment and/or storage unit, an onsite TSD unit, or to an offsite TSD facility. Room 4-E is used for packaging, repackaging, and sampling mixed waste and is controlled to prevent unauthorized personnel from entering. Chapter 4.0 provides the additional detail of waste management activities in Room 4-E.

~~2.1.5Other Environmental Permits~~

~~2.1.5All environmental permits that are required to support operation of the 222-S Laboratory Complex are identified in the *Annual Hanford Site Environmental Permitting Status Report* (e.g., DOE/RL-96-63).~~

~~2.1.5Construction Schedule~~

~~2.1.5 Any proposed new construction for dangerous and/or mixed waste operations will be managed as described in the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste (HF RCRA Permit).~~

CONTENTS

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3.0 WASTE ANALYSIS [C]

This chapter provides information on the chemical, biological, and physical characteristics of the waste treated and stored at the 222-S Laboratory Complex. The information includes descriptions required by WAC 173-303-300(5) and (6) contained in the *Waste Analysis Plan for the 222-S Laboratory Complex Waste Management Units* (Appendix 3A).

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

Dangerous waste stored in the 222-S DMWSA is received from waste generation activities within the 222-S Laboratory Complex. Mixed waste stored in the 222-S DMWSA, Room 2-B, Room 4-E, and the 219-S Waste Handling Facility is received from waste generation activities within the 222-S Laboratory Complex, from other onsite generating units (off-unit), and from offsite generators.

Dangerous and/or mixed waste transferred to the 222-S Laboratory Complex are assigned dangerous waste numbers found in Chapter 1.0. The dangerous waste numbers for aqueous mixed waste in the 219-S Waste Handling Facility are based on the dangerous waste numbers for the Double-Shell Tank System Part A, Form 3. The dangerous waste numbers for containerized waste stored in the 222-S DMWSA, Room 2-B, and Room 4-E are based on the Part A, Form 3, for the Central Waste Complex.

3.2 WASTE ANALYSIS PLAN [C-2]

This Waste Analysis Plan for the 222-S Laboratory Complex Waste Management Units ~~(Appendix 3A)~~ summarizes waste acceptance processes and contains the following information: unit description, confirmation process, selection of waste analysis parameters, selection of sampling processes, selection of a laboratory, laboratory testing, and analytical methods, selection of waste re-evaluation frequencies, special procedural requirements, and recordkeeping requirements.

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CONTENTS

CONTENTS (cont)

FIGURES

TABLES

GLOSSARY

AA	atomic absorption
ALARA	as low as reasonably achievable
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
COLIWASA	composite liquid waste sampler
DEACT	deactivation as defined in 40 CFR 268.42
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
DOT	U.S. Department of Transportation
DST	double-shell tank
Ecology	State of Washington Department of Ecology
EPA	U.S. Environmental Protection Agency
GC/MS	gas chromatography/mass spectroscopy
GEA	gamma energy analysis
ICP	inductively coupled plasma
IPAN	imaging passive/active neutron
LDR	land disposal restriction
MSDS	material safety data sheet
PCB	polychlorinated biphenyls
QA	quality assurance
QC	quality control
RCRA	*Resource Conservation and Recovery Act of 1976*
RCW	Revised Code of Washington
TCLP	toxicity characteristic leaching procedure
TSD	treatment, storage, and/or disposal
UHC	underlying hazardous constituent
WAC	Washington Administrative Code

METRIC CONVERSION CHART

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
Length			**Length**		
inches	25.40	millimeters	millimeters	0.0393	inches
inches	2.54	centimeters	centimeters	0.393	inches
feet	0.3048	meters	meters	3.2808	feet
yards	0.914	meters	meters	1.09	yards
miles	1.609	kilometers	kilometers	0.62	miles
Area			**Area**		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	hectares	hectares	2.471	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	grams	grams	0.0352	ounces
pounds	0.453	kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			**Volume**		
fluid ounces	29.57	milliliters	milliliters	0.03	fluid ounces
quarts	0.95	liters	liters	1.057	quarts
gallons	3.79	liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76456	cubic meters	cubic meters	1.308	cubic yards
Temperature			**Temperature**		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Energy			**Energy**		
kilowatt hour	3,412	British thermal unit	British thermal unit	0.000293	kilowatt hour
kilowatt	0.948	British thermal unit per second	British thermal unit per second	1.055	kilowatt
Force/Pressure			**Force/Pressure**		
pounds per square inch	6.895	kilopascals	kilopascals	0.14504	pounds per square inch

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

WASTE ANALYSIS PLAN FOR 222-S LABORATORY COMPLEX

WASTE MANAGEMENT UNITS

1.0 UNIT DESCRIPTION

The purpose of this waste analysis plan (WAP) is to document the waste acceptance process, sampling methodologies, analytical techniques, and processes that are undertaken for sampling and analysis of dangerous and/or mixed waste managed in the 222-S Laboratory Complex treatment, storage, and/or disposal (TSD) unit. The 222-S Laboratory Complex is located in the 200 West Area of the Hanford Facility, Richland, Washington (Figures 1-1). Because dangerous waste does not include source, special nuclear, and by-product material components of mixed waste, radionuclides are not within the scope of this documentation. Information on radionuclides is provided only for general knowledge.

1.1 DESCRIPTION OF UNIT PROCESSES AND ACTIVITIES

The term 222-S Laboratory Complex describes both the geographical boundary established in the *Building Emergency Plan for the 222-S Laboratory Complex* (HNF-IP-0263-222S) and the waste management units contained in the 222-S Laboratory Complex TSD unit [Part A, Form 3 (DOE/RL-88-21)]. When referring to dangerous and/or mixed waste generated within the 222-S Laboratory Complex, the term "222-S Laboratory Complex" will be used. When referring to the waste management units contained in the TSD unit, the term "222-S Laboratory Complex TSD unit" will be used. The waste management units discussed in this WAP are:

- 219-S Waste Handling Facility, a tank system treatment and storage unit
- 222-S Dangerous and Mixed Waste Storage Area (222-S DMWSA), a container storage unit
- Room 2-B, a container storage unit.
- Room 4-E, a container storage unit.

Mixed waste is managed in each of the waste management units within the 222-S Laboratory Complex TSD unit. Dangerous waste is managed only in the 222-S DMWSA.

The 219-S Waste Handling Facility is located northeast of the 222-S Analytical Laboratory (Figure 1-2). The 219-S Waste Handling Facility accepts mixed waste for treatment and storage as well as radioactive waste for storage. Mixed and radioactive waste can be introduced into the 219-S Waste Handling Facility from: hood 16, hot cell drains within the 222-S Analytical Laboratory, piping connected from analytical instrumentation within the 222-S Analytical Laboratory, and various size containers pumped (e.g., tanker trucks, 208-liter drums) directly into one of the tanks. Mixed waste is aggregated in the tanks and prepared for transfer to another onsite TSD unit or offsite TSD facility. Acceptance criteria established in this WAP is designed to allow transfer of the mixed waste to the Double-Shell Tank (DST) System, an onsite TSD unit. The waste numbers appearing on the 222-S Laboratory Complex Part A, Form 3, for the 219-S Waste Handling Facility are based on the waste numbers contained on the Part A, Form 3, for the DST System.

After aggregation of mixed and/or radioactive waste in the tanks of the 219-S Waste Handling Facility, the batch of mixed waste proposed for transfer is isolated from other mixed waste in the tank system. For transfers into the DST System, a sample is acquired before and after treatment. Sampling and analysis results from the sample acquired before treatment will determine the amount of sodium hydroxide (NaOH) and sodium nitrite ($NaNO_2$) that will be added to the isolated batch of mixed waste. Addition of these chemicals makes the mixed waste more amenable for storage in the DST System. A sample is acquired from the treated waste to ensure treatment was successful.

For all transfers out of the 219-S Waste Handling Facility, a sample is acquired from the mixed waste to determine whether the mixed waste displays the characteristics of corrosivity (D002) and heavy metals

(D004-D011). Sampling and analysis frequencies to determine whether the mixed waste contains underlying hazardous constituents are found in Section 7.3. Furthermore, 222-S Laboratory Complex management will determine on a case-by-case basis whether sampling and analysis results are needed for other parameters [e.g., organic constituents (D018-D043)].

The 222-S DMWSA is located on the north side of the 222-S Analytical Laboratory (Figure 1-2) and consists of two metal storage structures. The 222-S DMWSA provides container storage of dangerous, mixed, and/or radioactive waste. The containers are stored until transferred to an onsite TSD unit, an offsite TSD facility, Room 2-B, or Room 4-E. Waste management activities occurring in the 222-S DMWSA include packaging, repackaging, and sampling. 222-S Laboratory Complex management will determine on a case-by-case basis whether a sample is acquired from dangerous and/or mixed waste stored in the 222-S DMWSA. Sampling and analysis results can be obtained to ensure waste acceptance criteria has been met for subsequent transfers/shipments, to complete physical/chemical screening requirements, or to perform characterization. The waste numbers appearing on the 222-S Laboratory Complex Part A, Form 3, for the 222-S DMWSA are based on the waste numbers contained on the Part A, Form 3, for the Central Waste Complex.

Room 2-B and Room 4-E are located within the 222-S Analytical Laboratory (Figure 1-2). The Room 2-B waste container storage unit is a portion of Room 2-B. The Room 4-E container storage unit comprises the entire Room 4-E unless otherwise identified. Room 2-B and Room 4-E provide container storage of mixed and/or radioactive waste. The containers are stored until transfer to the 219-S Waste Handling Facility, the 222-S DMWSA, an onsite TSD unit, or an offsite TSD facility. Containers also are transferred between the permitted portions of Room 2-B and Room 4-E. Waste management activities occurring in Room 2-B and Room 4-E include packaging, repackaging, and sampling. 222-S Laboratory Complex management will determine on a case-by-case basis whether a sample is acquired from waste stored in Room 2-B or Room 4-E. Sampling and analysis results can be obtained to ensure waste acceptance criteria has been met for subsequent transfers/shipments, to complete physical/chemical screening requirements, or to perform characterization. The waste numbers appearing on the 222-S Laboratory Complex Part A, Form 3, for Room 2-B and Room 4-E are based on the waste numbers contained on the Part A, Form 3, for the Central Waste Complex.

1.2 IDENTIFICATION, CLASSIFICATION, AND QUANTITIES OF WASTE MANAGED WITHIN THE 222-S LABORATORY COMPLEX TSD UNIT

The dangerous and/or mixed waste managed at the 222-S Laboratory Complex TSD unit is received from waste generated within the 222-S Laboratory Complex, from waste generated at other Hanford Facility locations (off-unit), and from waste generated offsite. The following general sources describe the types of dangerous and/or mixed waste managed in the 222-S Laboratory Complex TSD unit:

- Waste generated within the 222-S Laboratory Complex
  - Analytical waste resulting from sample analysis
  - Discarded chemical products from laboratory reagents/standards
  - Waste from chemicals synthesized or created during research activities
  - Unused samples
  - Maintenance/construction project waste
- Off-unit/offsite waste destined for the 219-S Waste Handling Facility.

Each of these general sources of waste is discussed in the following sections.

In addition, the following waste is prohibited from management in the 222-S Laboratory Complex container storage units (222-S DMWSA, Room 2-B, and Room 4-E):

- Dangerous and/or mixed waste not identified on the Part A, Form 3

- Reactive waste defined in WAC 173-303-090(7)(a)(vi), (vii), and (viii).

The following waste is prohibited from management in the 219-S Waste Handling Facility:

- Dangerous and/or mixed waste not identified on the Part A, Form 3
- Reactive waste defined in WAC 173-303-090(7)(a)(vi), (vii), and (viii)
- Organic compounds not miscible with water forming a separable layer
- Mixed waste designated as WT01 or WT02 only for rat inhalation toxicity [WAC 173-303-640(5)(e)]
- Waste likely to precipitate to the extent drain lines will clog.

1.2.1 Waste generated within the 222-S Laboratory Complex

Waste generated within the 222-S Laboratory Complex includes analytical waste resulting from sample analysis, discarded chemical products from laboratory reagents/standards, waste from chemicals synthesized or created during research activities, unused samples, and maintenance/construction project waste. Other solid waste generated within the 222-S Laboratory Complex are outside the scope of this WAP.

1.2.1.1 Analytical Waste Resulting from Sample Analysis

Analytical waste resulting from sample analysis constitutes the largest volume of waste to be stored. Liquid and non-liquid waste forms, as well as aqueous and non-aqueous wastes, are generated from laboratory activities. Analytical waste resulting from sample analysis can include, but is not limited to, waste generated from performing work under the sample exclusion in WAC 173-303-071(3)(l), or the treatability study exclusions in WAC 173-303-071(3)(r), and (s).

Analytical waste resulting from sample analysis contains chemical reagents used in the laboratory procedures and a contribution from the sample. Waste designations performed on analytical waste will be based on the following three considerations:

- Reagents used in the laboratory procedure
- Parameters for which testing is being performed under the given laboratory procedure (e.g., metals for ICP waste)
- For sample contribution, listed waste numbers identified on documentation accompanying incoming samples to the 222-S Analytical Laboratory.

The preceding three bullets illustrate how analytical waste resulting from sample analysis is designated based on information documented prior to the generation of waste and information regarding the contribution of samples. Information documented prior to the generation of waste is evaluated by 222-S Analytical Laboratory chemists and approved as part of the 222-S Analytical Laboratory procedure issuance process or test plan development. The evaluation will consist of the following elements:

- Estimate chemical constituents as worst case (i.e., highest concentration)
- A compatibility review to evaluate potential reactions and other hazards for chemicals used in the procedure or test plan using standard chemistry references.

After a 222-S Analytical Laboratory procedure or test plan is issued, the waste is generated. Information on waste in any given container is evaluated by 222-S Analytical Laboratory waste management personnel to determine listed waste numbers for samples that were tested. The waste designation is complete after sample contribution for listed waste numbers is considered. This waste designation approach results in a determination whether analytical waste resulting from samples can be introduced

into the 219-S Waste Handling Facility or must be packaged for transfer/shipment in containers. This approach establishes acceptable knowledge for analytical waste resulting from samples.

1.2.1.2 Discarded Chemical Products from Laboratory Reagents/Standards

Typically, only a few of these dangerous and/or mixed waste numbers are generated at any one time. The Part A, Form 3, for the container storage units lists all of the waste numbers because of the potential for a wide variety of research activities within the 222-S Laboratory Complex. Because this dangerous and/or mixed waste is in the original container or can be traced back to the original reagent/standard container, information on the container label and logbooks are used to establish acceptable knowledge.

1.2.1.3 Waste from Treatability Studies and Research Activities

Waste from treatability studies and research activities typically is generated in small quantities ranging from a few grams to a few liters. These waste types consist primarily of radiologically contaminated chemicals, such as organics and treatment products from treatability studies. Waste from treatability studies and research activities will be managed is the same fashion as analytical waste resulting from samples (Section 1.2.1.1).

1.2.1.4 Unused samples

Unused samples are generated as waste in accordance with the sample exclusion in WAC 173-303-071(3)(l), or the treatability study exclusions in WAC 173-303-071(3)(r), and (s). Unused samples are composited, to the extent a compatibility review can evaluate potential reactions and other hazards for chemicals. A grab sample from the composited unused samples is acquired, on a case-by-case basis based upon the matrix, to determine characteristics and LDR requirements, as applicable. 222-S Laboratory Complex waste management personnel will review information on the unused samples prior to collection of the grab sample to determine sampling and analysis parameters of concern. Information considered for determining sampling and analysis parameters of concern on unused samples include:

- Sampling and analysis results from 222-S Analytical Laboratory activities
- Listed waste numbers identified on documentation accompanying incoming samples to the 222-S Analytical Laboratory.

This waste designation approach results in a determination whether unused samples can be introduced into the 219-S Waste Handling Facility or must be packaged for transfer or shipment in containers. This approach establishes acceptable knowledge for unused samples.

1.2.1.5 Maintenance/Construction Project Waste

Maintenance/construction project waste is generated based on the need for such activities within the 222-S Laboratory Complex. Maintenance waste is typically generated from activities taking place on the 219-S Waste Handling Facility, the 222-S Analytical Laboratory ventilation system, and 222-S Analytical Laboratory hoods. Construction project waste can result from upgrades or renovations within the 222-S Laboratory Complex. Maintenance/construction project waste is primarily debris. Debris may be hazardous debris from maintenance of the 219-S Waste Handling Facility. Chemicals are evaluated when used in maintenance/construction project activities work planning process. Non-hazardous chemicals are substituted when ever possible. Hazardous chemicals are considered in the designation of debris. This approach establishes acceptable knowledge for maintenance/construction project waste.

1.2.2 Off-Unit/Offsite Waste

Off-unit/offsite waste managed within the 222-S Laboratory Complex TSD unit includes mixed waste destined for the 219-S Waste Handling Facility. Because of the ability to introduce waste into the 219-S Waste Handling Facility through Hood 16 in Room 2-B, hot cell drains, and the ability to configure the 219-S Waste Handling Facility to receive containerized waste, mixed waste is received and accepted at the 222-S Laboratory Complex that is destined for the 219-S Waste Handling Facility. Off-unit/offsite mixed waste introduced into Hood 16 or a hot cell drain will be accepted into the container storage unit(s) prior to introduction into the 219-S Waste Handling Facility. Acceptable knowledge is obtained during the confirmation process for off-unit/offsite mixed waste (Section 2.0).

1.3 OPERATING CONSTRAINTS

Operating constraints exist for the 222-S Laboratory Complex TSD unit and are related to the storage and/or treatment of the dangerous and/or mixed waste. Operating constraints related to the storage and/or treatment of dangerous and/or mixed waste are a subset of constraints required for operations at the 222-S Laboratory Complex TSD unit. The parameters identified in Section 3.0 of this WAP address operating constrains related to waste properties, processes, and regulatory requirements.

1.4 PROCESS FLOW DIAGRAM

Refer to the following figures to understand waste management processes within the 222-S Laboratory Complex.

- Figure 1-3: Sample Management
- Figure 1-4: Container Storage Units
- Figure 1-5: 219-S Waste Handling Facility - 222-S Laboratory Complex Generated Waste
- Figure 1-6: 219-S Waste Handling Facility - Off-unit/Offsite Waste.

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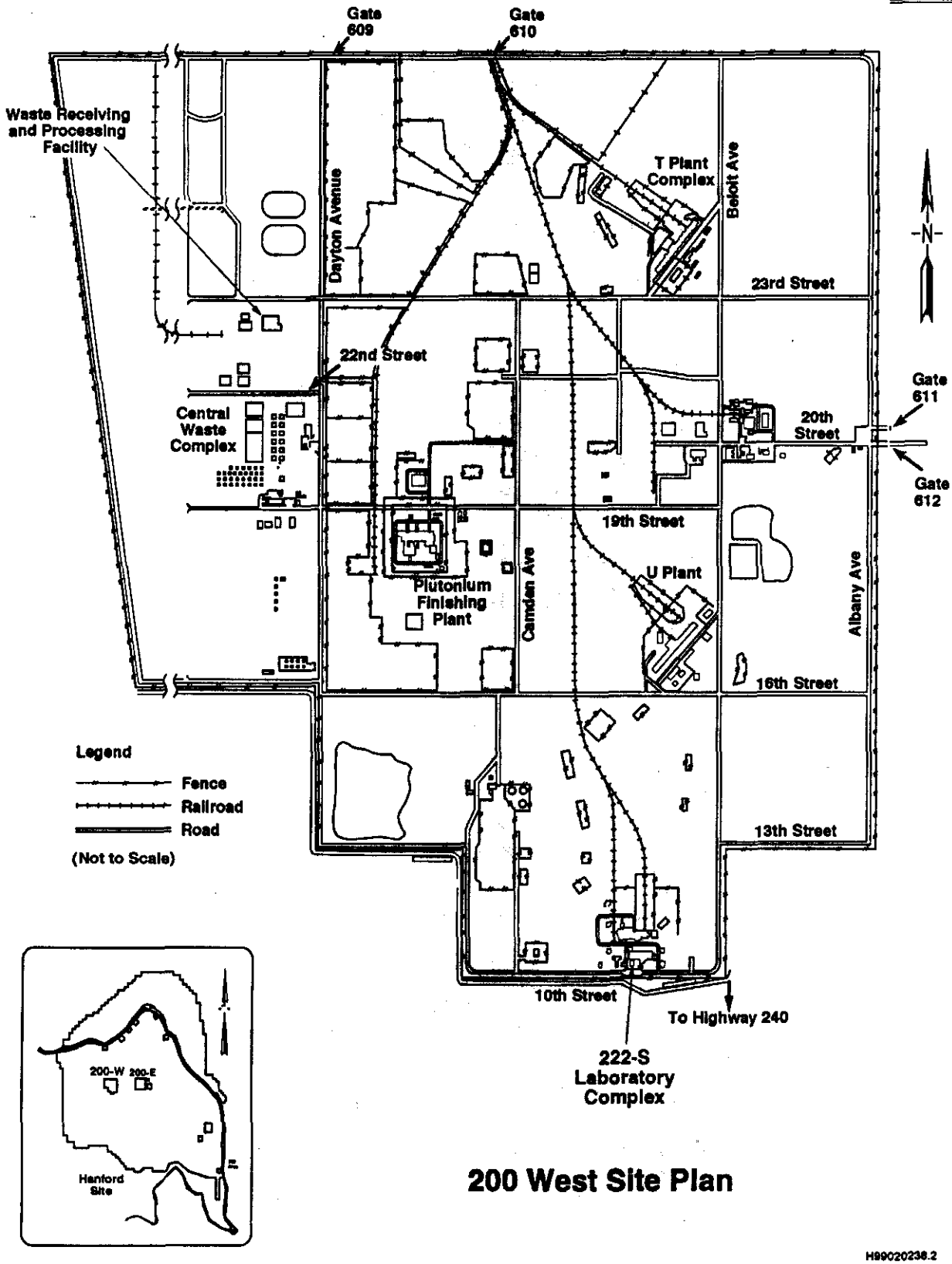

Figure 1-1. 200 West Area Site Plan.

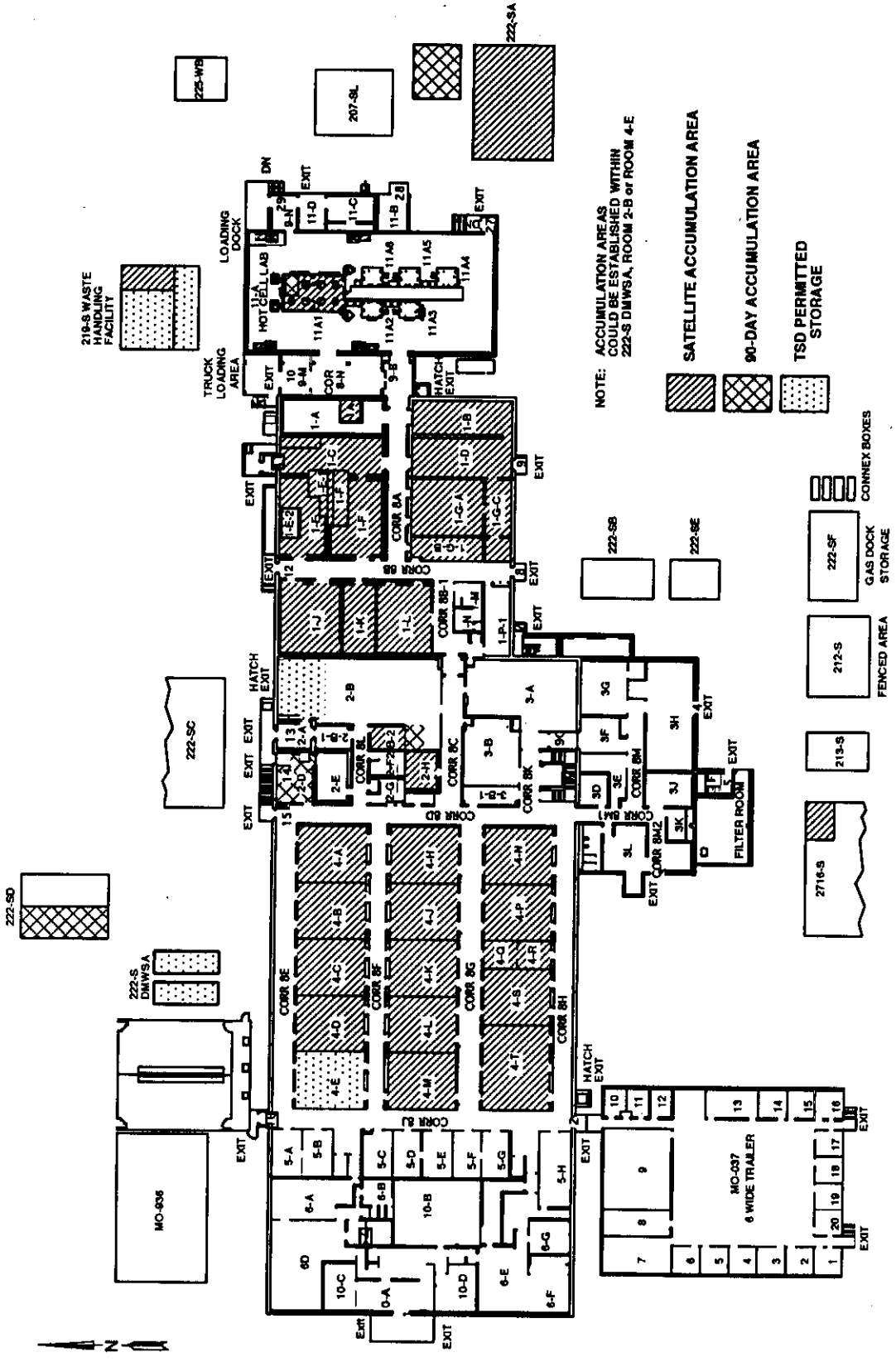

Figure 1-2. 222-S Laboratory Complex Dangerous and/or Mixed Waste Management Areas.

H00050073.72

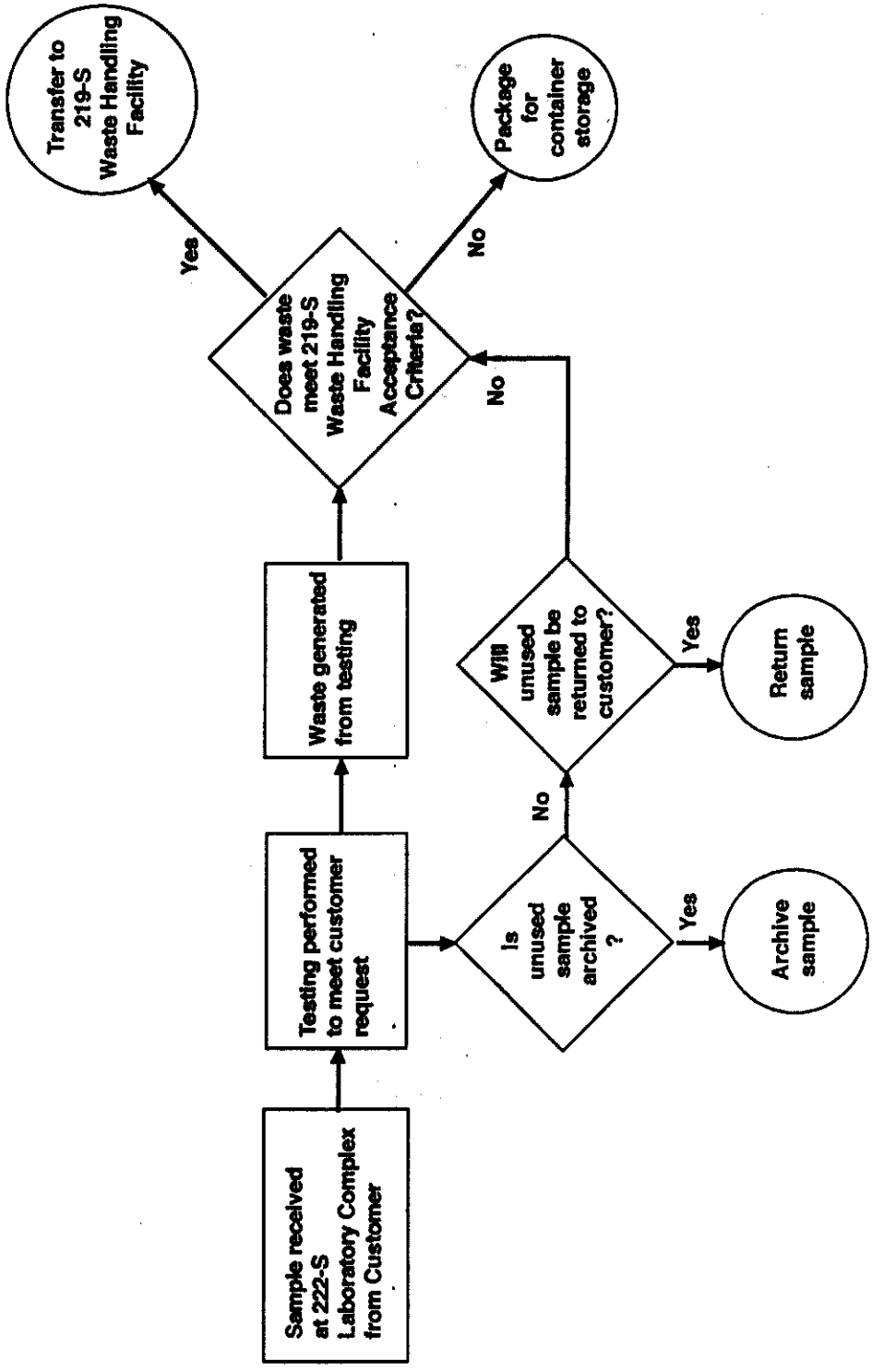

Figure 1-3. Sample Management.

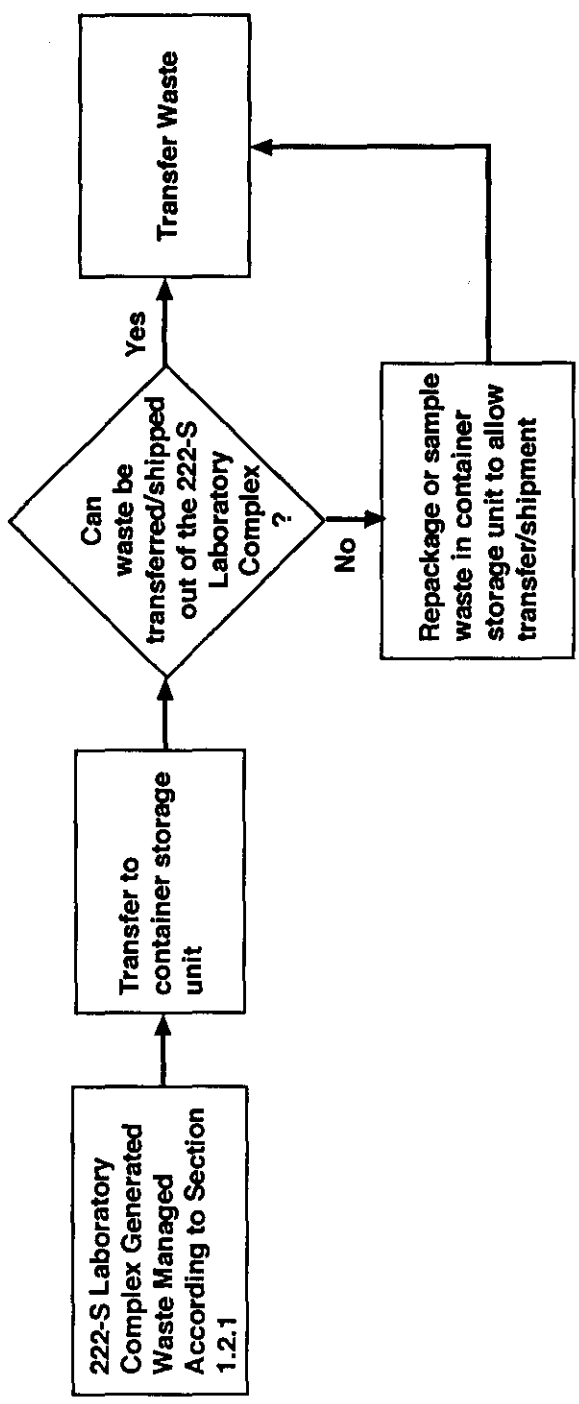

Figure 1-4. Container Storage Units.

Figure 1-5. 219-S Waste Handling Facility - 222-S Laboratory Complex Generated Waste

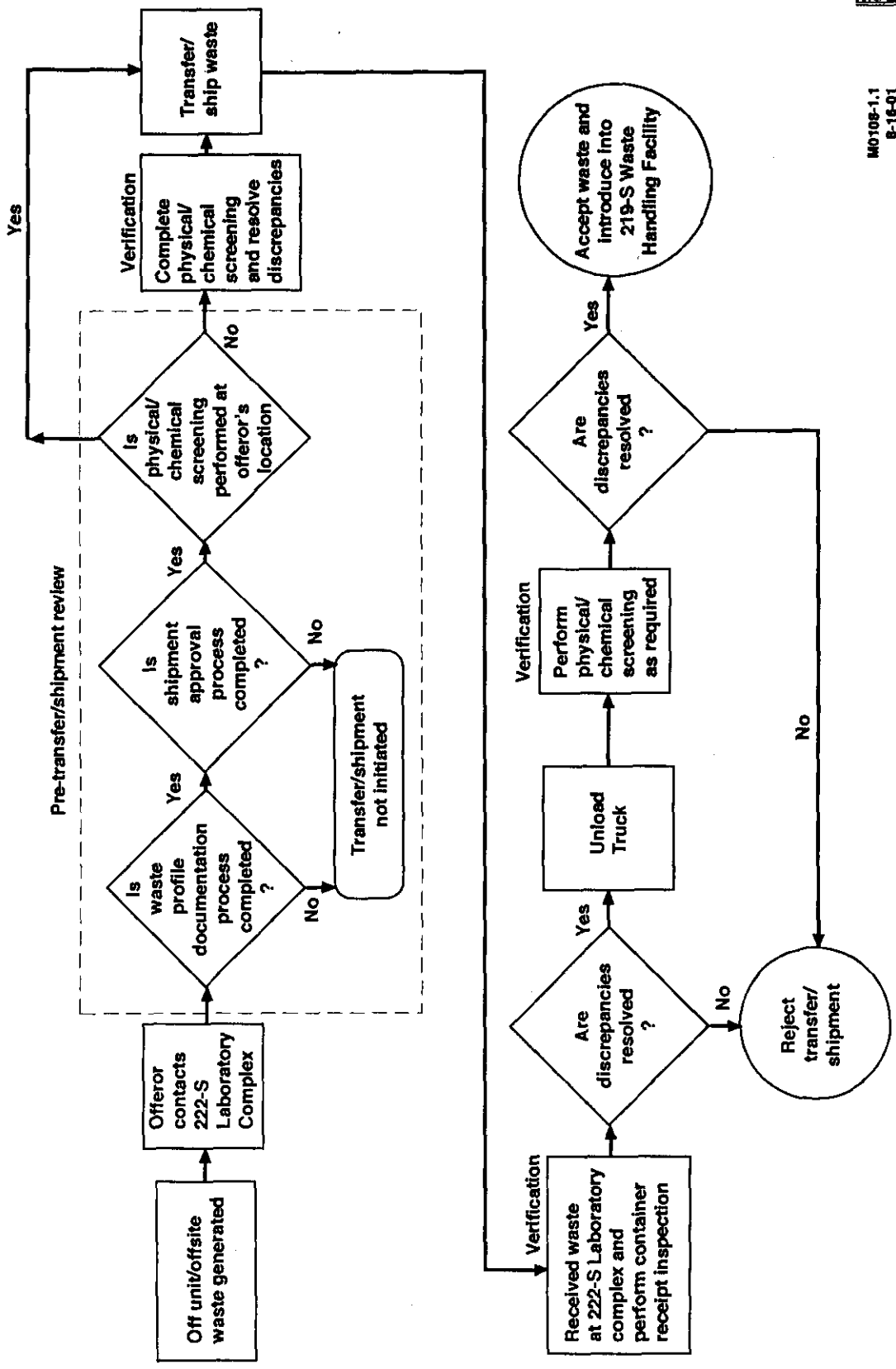

Figure 1-6. 219-S Waste Handling Facility - Off-unit/Offsite Waste

2.0 CONFIRMATION PROCESS

WAC 173-303-300(1) requires confirmation of dangerous and/or mixed waste before initial acceptance of waste to ensure the waste is managed properly. Confirmation occurs prior to transfer as part of the pre-transfer review for 222-S Laboratory Complex generated waste. Confirmation occurs prior to transfer/shipment (pre-transfer/shipment review) as well as after transfer/shipment (verification) for off-unit/offsite waste. Confirmation activities will be performed in accordance with TSD-unit specific governing documentation and performed in a consistent matter.

The confirmation process for the container storage units is different from the confirmation process for the 219-S Waste Handling Facility tank system. Enough differences exist to warrant separate processes for different types of waste management units. Confirmation is not required for transfer of waste between container storage units. When a transfer of waste occurs between container storage units, information has already been obtained on the mixed waste prior to entry into the container storage unit. In addition, the waste numbers on the Part A, Form 3, for the different container storage units are identical. As a result, the waste tracking system(s) need only to be updated to reflect the new location of the mixed waste and any new packaging configuration.

For transfers of mixed waste from a container storage unit into the 219-S Waste Handling Facility, confirmation is necessary because the waste numbers contained on the Part A, Form 3, are different and waste can not be retrieved once introduced into the 219-S Waste Handling Facility. The waste numbers for the 219-S Waste Handling Facility are a subset of the waste numbers for the container storage unit(s), and therefore, are more restrictive. The following items must be satisfied prior to transfer of mixed waste from a container storage unit into the 219-S Waste Handling Facility:

- A complete waste designation must be performed in accordance with management practices of Section 1.2.1 to determine compliance with the Part A, Form 3, and to determine if the mixed waste is a prohibited waste
- Information must address compatibility of the mixed waste to the waste stored in the 219-S Waste Handling Facility (Section 7.2)
- Authorization for each container of mixed waste must exist in order for waste to be introduced into the 219-S Waste Handling Facility
- Following transfer of the mixed waste, the information regarding the waste must be transferred to the waste tracking system for the 219-S Waste Handling Facility.

The confirmation process consists of two parts; pre-transfer/shipment review and verification. Section 2.1 discusses the processes for 222-S Laboratory Complex generated waste. Sections 2.2 and 2.3 discuss the processes for off-unit/offsite waste.

2.1 PRE-TRANSFER REVIEW FOR 222-S LABORATORY COMPLEX GENERATED WASTE

222-S Laboratory Complex generated waste is managed in accordance with Section 1.2.1. As a result, confirmation processes of 222-S Laboratory Complex generated waste only include a pre-transfer review. If the 222-S Laboratory Complex generated waste is not managed in accordance with Section 1.2.1, the waste is subjected to container receipt inspection (Section 2.3.1) and physical/chemical screening (Section 2.3.2) requirements.

2.1.1 Container Storage Unit

When dangerous and/or mixed waste is managed in accordance with Section 1.2.1, acceptable knowledge is obtained on the waste to ensure the waste is managed properly for storage. Management practices in Section 1.2.1 establish whether the dangerous and/or mixed waste is a prohibited waste or whether the waste is ignitable, reactive, or incompatible. Available knowledge regarding LDR information (Section 7.3) is entered into a waste tracking system used to meet operating record requirements. If characterization information obtained prior to storage is not sufficient to address characterization parameters for subsequent treatment and/or disposal, sampling and analysis is performed on the waste for the needed parameters after acceptance.

2.1.2 219-S Waste Handling Facility

222-S Laboratory Complex generated waste can be introduced into the 219-S Waste Handling Facility; as generated, from a satellite accumulation area container, from a 90-day accumulation area container, or from a container storage unit container. A transfer from a container storage unit container is addressed in Section 2.0. For the remaining three scenarios, the following items must be satisfied prior to transfer of mixed waste into the 219-S Waste Handling Facility:

- A complete waste designation must be performed in accordance with management practices of Section 1.2.1 to determine compliance with the Part A, Form 3 and to determine if the mixed waste is a prohibited waste
- Information must address compatibility of the mixed waste to the waste stored in the 219-S Waste Handling Facility (Section 7.2)
- Authorization for each container of mixed waste must exist in order for waste to be introduced into the 219-S Waste Handling Facility
- Following transfer of the mixed waste, the information regarding the waste must be transferred to the waste tracking system for the 219-S Waste Handling Facility and the quantity of waste introduced is estimated and recorded.

2.1.2.1 Hood 16 in Room 2-B

Management practices in Section 1.2.1 establish whether the mixed waste is a prohibited waste or whether the waste is ignitable, reactive, or incompatible. Hood 16 activities include introducing waste and cleaning laboratory equipment. In addition to the requirements of Section 2.1.2, adequate flush volumes are estimated and recorded.

2.1.2.2 Hard-Piped Laboratory Instrumentation

Management practices in Section 1.2.1 establish whether the mixed waste is a prohibited waste or whether the waste is ignitable, reactive, or incompatible. Section 2.1.2 contains all the requirements for hard-piped laboratory instrumentation waste introduction.

2.1.2.3 Hot Cell Drains

Management practices in Section 1.2.1 establish whether the mixed waste is a prohibited waste or whether the waste is ignitable, reactive, or incompatible. Hot cell house keeping practices result in water wash downs of the interior surfaces of the hot cell and equipment contained in the hot cell. Mixed waste introduced into the 219-S Waste Handling Facility through hot cell drains is waste generated in the hot cell and waste that can not be introduced through Hood 16 in Room 2-B due to ALARA reasons. Storage does not occur in 222-S Analytical Laboratory hot cells. In addition to the requirements of Section 2.1.2, adequate flush volumes are estimated and recorded.

2.2 PRE-TRANSFER/SHIPMENT REVIEW FOR OFF-UNIT/OFFSITE WASTE

The pre-transfer/shipment review is the process used by the 222-S Laboratory Complex designated waste acceptance organization to obtain and evaluate the generator's analysis of mixed waste to be received into the 222-S Laboratory Complex TSD unit and to document acceptable knowledge. The pre-transfer/shipment review consists of a waste profile documentation process and a transfer/shipment approval process. The pre-transfer/shipment review occurs before the waste is transferred/shipped. Off-unit waste will be received as a transfer unless Hanford Facility RCRA Permit, Dangerous Waste Portion, General Condition II.P.1 applies. Off-site waste will be received as a shipment in accordance with WAC 173-303-370 with the exception of mixed waste that must be introduced into the 219-S Waste Handling Facility through hot cell drains due to radiological levels based on ALARA principles (refer to Section 2.3.2).

Minimum information required to receive waste into the 222-S Laboratory Complex TSD unit consists of information to meet characterization for storage requirements. This minimum information contains four elements: (1) ensure waste can be managed pursuant to the Part A, Form 3, (2) ensure the waste is not a prohibited waste, (3) determine if the waste is an ignitable, reactive, or incompatible waste as defined in WAC 173-303-040, and (4) treatment and/or disposal characterization information when mixed waste is destined for the 219-S Waste Handling Facility. If analysis of the characterization information leads to a conclusion that the waste is ignitable, reactive, or incompatible, acceptance of the waste into 222-S Laboratory Complex TSD unit must be conducted pursuant to Section 7.2.

2.2.1 Waste Profile Documentation Process

During the waste profile documentation process, the Hanford organization generating mixed waste, the off-site generator, or Hanford Facility TSD unit personnel have the responsibility to provide relevant information pertaining to the proper management of the waste. Characterization information pertaining to the treatment and/or disposal of the mixed waste will be obtained during the waste profile documentation process when the mixed waste is destined for the 219-S Waste Handling Facility. Authorization for each container of mixed waste must exist in order for waste to be introduced into the 219-S Waste Handling Facility.

During the waste profile documentation process, the 222-S Laboratory Complex designated waste acceptance organization obtains the following information:

- Description of waste generating process
- Characterization data
- Waste numbers
- LDR data
- Composition of waste including regulated constituents of concern.

The waste profile documentation process is described as follows:

1. Hanford organization generating mixed waste or off-site generator fills out new waste profile documentation. Hanford Facility TSD unit personnel obtains existing information on waste from operating record. These organizations are here in referred to as the offeror.

2. The 222-S Laboratory Complex designated waste acceptance organization reviews information towards the waste acceptance criteria for the entire waste management pathway within the 222-S Laboratory Complex TSD unit.

3. The 222-S Laboratory Complex designated waste acceptance organization requests additional information from the offeror to address discrepancies for either: (1) Inconsistent information, (2)

Information not constituting acceptable knowledge as defined by EPA (EPA 1994, pages 1-11 and 1-12).

4. Information (waste profile documentation) is resubmitted by the offeror addressing concerns in number 3.

5. If concerns are addressed, waste profile documentation is approved.

6. If concerns are not addressed, waste profile documentation is not approved.

2.2.2 Shipment Approval Process

After the offeror has received waste profile documentation approval, the offeror is subjected to the shipment approval process. Only those containers approved under the waste profile documentation as part of the shipment approval process will be transferred/shipped to the 222-S Laboratory Complex TSD unit. During the shipment approval process, the 222-S Laboratory Complex designated waste acceptance organization obtains the following information:

- Number and type of containers
- Waste quantity
- Waste stream profile documentation identifier
- General physical and chemical properties and composition of the waste if not contained within the waste profile documentation.

The shipment approval process is described as follows:

1. The offeror obtains information from existing database, operating record, or generator records on each container to be transferred/shipped under the approved waste profile documentation.

2. Information is submitted to the 222-S Laboratory Complex designated waste acceptance organization by the offeror and is reviewed for:
   - Consistency with approved waste profile documentation
   - Acceptable knowledge review for a waste stream where characterization is incomplete on the waste profile documentation (e.g., labpacks)
   - Consistency with waste acceptance criteria for the entire waste management pathway within the 222-S Laboratory Complex TSD unit.

3. The 222-S Laboratory Complex designated waste acceptance organization requests additional information from the offeror to address any discrepancies.

4. Information (container documentation) is resubmitted by the offeror addressing concerns in number 3.

5. If discrepancies are address, approval documentation is issued. Along with the approval documentation, the 222-S Laboratory Complex designated waste acceptance organization will determine if physical/chemical screening will be performed at the offeror's location prior to transfer/shipment. If physical/chemical screening is performed at the offeror's location, a traceable tamper resistant device will be used on the container to demonstrate the transfer/shipment has not been altered.

6. If discrepancies are not addressed, shipment is not approved.

2.3 VERIFICATION OF OFF-UNIT/OFFSITE WASTE

Verification of off-unit/offsite mixed waste to be accepted into 222-S Laboratory Complex TSD unit is performed by the 222-S Laboratory Complex designated waste acceptance organization. Verification begins after the transfer/shipment is approved and the transfer/shipment arrives at the 222-S Laboratory Complex. Verification contains two elements, a mandatory element called the container receipt inspection, and physical/chemical screening. Verification activity results are documented by the 222-S Laboratory Complex designated waste acceptance organization.

2.3.1 Container Receipt Inspection of Off-Unit/Offsite Waste

When the transfer/shipment arrives at the 222-S Laboratory Complex, the container receipt inspection is performed. The container receipt inspection is performed by 222-S Laboratory Complex personnel or the designated waste acceptance organization. The following criteria are evaluated during the container receipt inspection:

- Number of containers (significant discrepancy for off-site shipments)
- Bulk quantities (significant discrepancy for off-site shipments)
- Size of containers
- Labels
- Container integrity
- Tamper resistant seals, if applicable.

Discrepancies identified during the container receipt inspection are communicated to the offeror. Discrepancies are resolved before the mixed waste is unloaded from the truck. Offsite shipments will comply with the provisions of WAC 173-303-370(4) and (5). Once the discrepancies are resolved, the mixed waste is unloaded from the truck and moved into one of the container storage units (222-S DMWSA, Room 2-B, or Room 4-E).

2.3.2 Physical/Chemical Screening of Off-Unit/Offsite Waste

As a verification element, physical/chemical screening frequencies are applied to mixed waste based on whether the transfer/shipment is a tanker truck (greater than 417 liters), a bulk container (less than or equal to 417 liters), or a labpack. The parameters for physical/chemical screening include:

- Visual inspection
- Water miscibility/separable organics
- Water reactivity
- pH
- Cyanides
- Sulfides.

The methods and rationale for selection of these parameters are discussed in Section 3.0. Every parameter is used when performing physical/chemical screening. The physical/chemical screening frequencies are as follows:

- Tanker truck (greater than 417 liters): Every transfer/shipment at the offeror's location.
- Bulk container (less than or equal to 417 liters): Every transfer/shipment from each stream from each offeror at the container storage unit or at offeror's location. Containers on each transfer/shipment will be randomly selected based on SW-846 Chapter 9 unless pre-transfer/shipment review targets particular containers. The frequency on each transfer/shipment will be 10% with a minimum of 2 containers.
- Labpack: Every transfer/shipment from each stream from each offeror at the container storage unit or at offeror's location. Containers on each transfer/shipment will be randomly selected based on

SW-846 Chapter 9 unless pre-transfer/shipment review targets particular containers. The frequency on outer containers for each transfer/shipment will be 10% with a minimum of 2 containers. The frequency on inner containers from selected outer containers will be 10% with a minimum of 5 containers. If the inner container count is less than 5, all containers will be screened.

Discrepancies identified during physical/chemical screening activities are resolved before the waste is accepted. When physical screening must be performed in the hot cell for offsite shipments of mixed waste, the 15-day clock described in WAC 173-303-370(4)(b) begins upon discovery of the discrepancy. If discrepancies are not resolved, the mixed waste transfer/shipment is rejected.

2.3.2.1 Physical/Chemical Screening Quality Control

The following sections describe the quality control (QC) elements used to ensure valid screening results.

2.3.2.1.1 ~~2.3.2.11~~ Physical Screening Quality Control

Physical screening QC is used by 222-S Laboratory Complex designated waste acceptance organization to ensure quality visual inspection results. Visual inspection does not consist of the use of instrumentation or chemical tests. Visual inspection QC depends on appropriate training for the individual(s) performing the test.

~~2.3.2.1.12~~2.3.2.1.2 Chemical Screening Quality Control

Chemical screening QC is used by 222-S Laboratory Complex designated waste acceptance organization to ensure that appropriate data are obtained when performing chemical screening.

The following applies to each chemical screening parameter.

- Each lot is evaluated to determine that the lot is usable. Unstable reagents are accounted for when determining the usability of the lot.
- For each lot, the source, concentration, date of receipt, lot number, and manufacturer/preparer (as applicable) is maintained in a logbook.
- For individual chemical screening parameters, QC checks are performed in accordance with manufacturer's instructions.

2.3.2.2 Physical/Chemical Screening Exceptions

There are cases in which physical/chemical screening is not required. The exceptions are as follows:

- Commercial chemical products that are not U and P listed waste in the original product container(s) or products traceable back to the original product container (e.g., off-specification, outdated, or unused products)
- Chemical screening is not required for mixed waste introduced into the 219-S Waste Handling Facility through hot cell drains due to ALARA concerns. Physical screening (visual inspection) on mixed waste introduced into the 219-S Waste Handling Facility through hot cell drains will be completed at the offeror's location or delayed until unpackaged in the hot cell.
- Other special-case waste could be exempted on a case-by-case basis with prior approval from Ecology.

2.3.2.3 Physical/Chemical Screening Sampling And Analysis

Physical/Chemical screening samples do not require particular sample containers, any container labels, or any sample preservation techniques if the chemical screening tests are performed at the time and location of sampling, or as soon as possible thereafter. During any interim period when the sample cannot be

tested at the time and location of sampling, the sample is stored in a manner that maintains chain of custody and protects sample integrity. Sample collection methods for chemical screening samples are conducted pursuant to WAC 173-303-110(2) or SW-846 Chapter 9 methodologies.

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3.0 SELECTING WASTE ANALYSIS PARAMETERS

Regulations [WAC 173-303-300(2) and (5)(a); WAC 173-303-140] require that information be obtained, documented, and/or reported regarding waste accepted into the 222-S Laboratory Complex TSD unit. When characterization information does not constitute acceptable knowledge, sampling and analysis of the waste is required. The need to perform sampling and analysis on a dangerous and/or mixed waste could be identified by 222-S Laboratory Complex personnel or designated acceptance organization during the pre-shipment review process, during physical/chemical screening activities, or during management of waste in the 222-S Laboratory Complex TSD unit. 222-S Laboratory Complex personnel or designated acceptance organization may determine to perform sampling and analysis on dangerous and/or mixed waste stored in the 222-S DMWSA, Room 2-B, or Room 4-E based on characterization needs of the receiving onsite TSD unit of offsite TSD facility.

For the parameters, methods, and rationale for off-unit/offsite waste, information is presented in Table 3-1. For the parameters, methods, and rationale for testing of waste within the 219-S Waste Handling Facility, information is presented in Table 3-2. For the parameters, methods, and rationale for waste managed within the 222-S DMWSA and Room 2-B, information is presented in Table 3-3.

Non-standard methods are used for physical/chemical screening of waste. Descriptions of these non-standard methods are provided.

3.1 PHYSICAL SCREENING PARAMETERS

The following methods are used to perform physical screening as identified in Chapter 2.0, Section 2.3.

(1) Visual inspection

Rationale: This method meets the requirement to ensure consistency between waste containers and the accompanying shipment documentation.

Method: The container is opened and the contents are removed as needed for visual examination. Homogenous loose solids could be probed to determine the presence of material not documented, or for improperly absorbed liquids. Visual observations are compared with the applicable profile information and the container specific information on documentation.

Criteria: A container fails the inspection for any of the following reasons: (a) undocumented, improperly packaged, or inadequately absorbed liquids; (b) discovery of prohibited articles or materials listed in Chapter 1.0, Section 1.2; (c) discovery of material not consistent with documented knowledge; and (d) variability greater than 25 percent by volume in waste stream components (e.g., paper, plastic, cloth, metal).

3.2 CHEMICAL SCREENING PARAMETERS

The following methods are used to perform chemical screening (fingerprint analysis) identified in Section 2.3.

(1) Water miscibility/separable organics

Rationale: To determine if the waste is immiscible with water or has separable organics. This information is used to ensure 219-S Waste Handling Facility waste can meet DST System waste acceptance criteria.

Method: Water is added to a sample of solid or liquid waste. The solution is observed for evidence of layering.

Tolerance: A positive indication of layering with water in a waste constitutes a failure.

(2) Water reactivity screen

Rationale: To determine if the waste has the potential to vigorously react with water, form gases, or other reaction products. This information is used to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the documentation.

Method: Water is added to a sample of solid or liquid waste. The solution is observed for evidence or fuming, bubbling, spattering, or temperature change. These reactions are considered to be positive evidence that the waste is water reactive.

Tolerance: A positive indication in a waste that cannot be explained by documented constituents constitutes a failure.

(3) pH screen

Rationale: This method is used to identify the pH and corrosive nature of an aqueous or solid waste, to ensure safe segregation and storage of incompatible waste, and to confirm consistency with shipping documentation.

Method: Full range pH paper is used for the initial screening. If the initial screen indicates a pH below 4 or above 10, a pH meter could be used, or a narrow range pH paper. Solids are mixed with an equal weight of water and the liquid portion of the solution is tested. The extractant of the sample is placed on the pH paper. The pH paper is not dipped into the sample.

Tolerance: pH paper for this test has a sensitivity of ±1.0 pH units. If the pH of a matrix appears to exceed regulatory limits (less than or equal to 2.0 or greater than or equal to 12.5) in waste not documented as being regulated for this property, the container fails the test.

(4) Cyanide screen

Rationale: To indicate if waste could release hydrogen cyanide upon acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the documentation.

Method: To a test tube or watch dish containing approximately 2 milligrams of sample, an equal amount of freshly prepared ferrous ammonium citrate is added. 3 Normal hydrochloric acid is used to reduce the pH of the solution to near 2.0. A deep blue color indicates the presence of cyanide.

Tolerance: A positive indication in a waste that cannot be explained by documented constituents constitutes a failure.

(5) Sulfide screen

Rationale: To indicate if the waste could release hydrogen sulfide upon acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the shipping documentation.

Method: Approximately 2 milligrams of sample is added to a watch dish or test tube and enough 3 Normal hydrochloric acid is added to bring the pH down to near 2.0. A sulfide test strip is placed in the solution. If the paper turns brown or silvery black, the presence of sulfides in the sample is indicated.

Tolerance: A positive indication in a waste that cannot be explained by documented constituents constitutes a failure.

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Table ~~0~~3-1. Parameters and Rationale for Off-Unit/Offsite Waste

Parameter[a]	Method[b]	Rationale for Selection
Physical Screening		
Visual inspection	Field method - observe phases, presence of solids in waste	Ensure that waste matches that described on waste profile documentation; identify nonwastewaters; identify waste prohibited by LDR requirements (D009 elemental mercury contaminated with radioactive materials subcategory) related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics	Field water mix screen	Ensure that waste matches that described on waste profile documentation; identify separable organics; identify waste prohibited by LDR requirements (D001 High TOC nonwastewater subcategory and D009 radioactive hydraulic oil) related to downstream TSD unit acceptance criteria
Water reactivity	Field water mix screen	Ensure that waste matches that described on waste profile documentation; ensure compliance with WAC 173-303-395(1)(b)
pH	Field pH screen (pH paper method)	Ensure that waste matches that described on waste profile documentation; ensure compliance with WAC 173-303-395(1)(b)
Cyanides	Field cyanide screen	Ensure that waste matches that described on waste profile documentation; ensure compliance with WAC 173-303-395(1)(b)
Sulfides	Field sulfide screen	Ensure that waste matches that described on waste profile documentation; ensure compliance with WAC 173-303-395(1)(b)
Pre-Shipment Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements (nonwastewater high mercury subcategories) related to downstream TSD unit acceptance criteria.(for nonwastewaters only)
Toxicity characteristic organic compounds	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds	Identify waste not identified on the Part A, Form 3
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified on the Part A, Form 3 (for waste with >1% solids and for which WP03 could apply)

[a] Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.

[b] Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed. For other cases, method will be reliable.

Table 03-2. Parameters, Methods, and Rationale for Testing of Waste Within the 219-S Waste Handling Facility.

Parameter[a]	Method[b]	Rationale for Selection
General Chemistry and Organic parameters		
pH or hydroxide	9040	To determine characteristic of transfer/shipment
Total Organic Carbon	9060	To to determine LDR status as a wastewater
Total suspended solids	2540D[b]/160.2[c]	To determine LDR status as a wastewater
Toxicity characteristic organic compounds	1311/8260 (volatile organic compounds) and 1311/8270 (semivolatile organic compounds	To meet receiving unit waste acceptance criteria, if requested by the receiving unit.
Semivolatile organic underlying hazardous constituents	8270C (semivolatile organic compounds	To determine underlying hazardous constituents in aggregated waste
Inorganic parameters		
Antimony, Beryllium, Nickel, Thallium	1311 as applicable, /6010/6020/200.8[c]	To determine underlying hazardous constituents in aggregated waste
Arsenic, Barium, Cadmium, Chromium, Lead, Silver, Selenium	1311 as applicable, /6010/6020//7000/200.8[c]	To determine characteristic of transfer/shipment and/or underlying hazardous constituents in aggregated waste.
Mercury	1311 as applicable, /7470A/6020/200.8[c]	To determine characteristic of transfer/shipment and/or underlying hazardous constituents in aggregated waste.

[a] Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
[b] Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed. For other cases, method will be reliable.
[c] EPA-600/4-79-020.

Table 03-3. Parameters, Methods, and Rationale for Waste Managed within the 222-S DMWSA, Room 2-B, and Room 4-E.

Parameter[a]		Method[b]	Media type	Rationale for selection
General chemistry parameters				
Flashpoint		1010/1020	Liquid	To ensure compliance with WAC 173-303-395(1)(b); determine regulatory status as D001 waste and applicability of LDR requirements
pH	Liquid	9040	Liquid, sludge	To determine regulatory status as D002/WSC2 waste; to provide proper waste designation; to determine applicability of LDR requirements and state-only requirements; and to identify waste that might compromise container integrity
	Solid	9045	Solid	
Hydroxide		9040	Liquid	To meet DST system waste acceptance criteria.
Free liquids		9095	Liquid, sludge, solid	To determine appropriate state-only LDR status of the waste.
Cyanide		9010/9012	Liquid, sludge, solid	To ensure compliance with WAC 173-303-395(1)(b); to provide proper waste designation and applicability of LDR requirements.
Sulfide		9030	Liquid, sludge, solid	To ensure compliance with WAC 173-303-395(1)(b); to provide proper waste designation and applicability of LDR requirements.
Organic parameters				
PCBs		8082	Liquid, sludge, solid	To determine proper waste management of waste in accordance with WAC 173-303-071(3)(k); to determine LDR requirements.
Total organic carbon		9060	Liquid, sludge, solid	To meet DST system waste acceptance criteria; to determine LDR status as a wastewater; determine applicability of state-only designation requirements
Total organic halides		9020/9021/9022	Liquid, sludge	To determine proper waste designation and applicability to state-only requirements.
Ammonia		4500-NH_3G[c]	Liquid, sludge	To meet DST System waste acceptance criteria.
Chloride		9056/300.0[d]	Liquid, sludge	To meet DST System waste acceptance criteria.
Persistent constituents		9075/9076/9077/ 9211/9212/9214/ 9250/9251/9253	Liquid, sludge	To determine proper waste designation and applicability to state-only designation requirements.
Total suspended solids		2540D[c]/160.2[d]	Liquid, sludge	To determine LDR status as a wastewater
Volatile organic compounds		1311/8260	Liquid, sludge, solid	To determine proper waste designation and applicability of LDRs.
Semivolatile organic compounds		1311/8270	Liquid, sludge, solid	To determine proper waste designation and applicability of LDRs.
Chlorinated herbicides		8151	Liquid	To determine proper waste designation and applicability of LDRs.

Table 03-3. Parameters, Methods, and Rationale for Waste Managed within the 222-S DMWSA, Room 2-B, and Room 4-E.

Parameter[a]	Method[b]	Media type	Rationale for selection
Inorganic parameters			
Antimony, Beryllium, Nickel, Thallium	1311 as applicable, /6010/6020/200.8[d]	Liquid, sludge, solid	To determine applicability of LDRs.
Arsenic, Barium, Cadmium, Chromium, Lead, Silver, Selenium	1311 as applicable, /6010/6020/7000/200.8[d]	Liquid, sludge, solid	To provide for proper waste designation and applicability of LDRs.
Sodium	6010	Liquid	To meet DST System waste acceptance criteria.
Mercury	1311 as applicable, /7470/6020/200.8[d]	Liquid, sludge, solid	To provide for proper waste designation and applicability of LDRs.

[a] Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
[b] Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed. For other cases, method will be reliable.
[c] APHA 1992.
[d] EPA-600/4-79-020.

4.0 SELECTING SAMPLING PROCESSES

Because of physical variations of waste managed in the 222-S Laboratory Complex TSD unit, sampling processes used to acquire and manage samples differ. The specific sampling methods and equipment used vary with the chemical and physical nature of the waste material and sampling circumstances. Although worker health and safety aspects are outside the scope of this WAP, health and safety protocols are followed to protect personnel when collecting samples of dangerous and/or mixed waste.

Section 4.0 does not apply to physical/chemical screening verification activities. Sampling processes for physical/chemical screening verification activities are discussed in Section 2.3.2.3.

4.1 SAMPLE CONTAINERS AND LABELS

Sample collection container selection and labeling practices follow SW-846 protocol. Sample collection containers and equipment are decontaminated according to EPA guidelines before use. Sample containers and equipment are frequently discarded rather than reused. Sample containers and equipment are maintained to ensure the data quality objectives of the sampling event are met.

4.2 SAMPLE PRESERVATIVES

Sample preservatives and holding times follow SW-846 protocol.

4.3 SAMPLE COLLECTION METHODS

Sample collection methods conform to the representative sample methods referenced in WAC 173-303-110(2). Sampling methods and equipment used are identified on Table 4.1. Representative samples of liquid waste from containers (vertical 'core sections') are obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. If a liquid waste has more than one phase, each phase is separated for individual testing depending on the waste management pathways of the phases. Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using a trier, as specified in SW-846. Dry powders and granules are sampled using a thief, also as specified in SW-846. Waste from the 219-S Waste Handling Facility is sampled with the sampling equipment installed on the tank system.

The number of grab samples collected from a container depends on the amount of waste present and on the homogeneity of the waste, determined on a case-by-case basis by 222-S Laboratory Complex management or the designated waste acceptance organization. In most instances, there is only one container of waste present. In such instances, it is common to acquire only one vertical composite sample (e.g., COLIWASA). If more than one container of a waste stream is present, all or some of the waste containers are samples. When some of the waste containers will be sampled, the containers chosen for sampling will be based on random number generating techniques in SW-846 Chapter 9 and the number of samples necessary to achieve data quality objectives.

A sample is collected from waste within the 219-S Waste Handling Facility from the sampling equipment installed on the tank system (Chapter 4.0 of the Hanford Facility Dangerous Waste Permit Application, 222-S Laboratory Complex). The contents of the tank are mixed prior to collection of the sample.

4.4 QUALITY ASSURANCE/QUALITY CONTROL

There are many elements of QA/QC associated with sampling processes at the 222-S Laboratory Complex TSD unit. These elements are as follows.

- A log of sampling activities is kept in accordance with standard industrial practices.
- A record of sample custody from the time of sample collection to receipt by a laboratory custodian is established. This chain of custody includes the names of responsible individuals and the dates and times of custody transfers.
- Each sample collected is uniquely identified.
- Samples are traceable to the data records.
- Samples are packaged to maintain preservation and to meet transportation requirements necessary to maintain the sample under the exclusions contained in WAC 173-303-071(3)(l), (r), and (s). Alterations of samples during collection or transfer are documented.
- Samples are protected from loss, damage, or tampering.
- Analytical data packages are evaluated for completeness (all required parameters present using required methodology), whether applicable holding times have been met, and whether any flags require corrective action.

Table ~~0~~4-1. Sampling Equipment.

Waste form	Waste type	Equipment*
Liquids	Free-flowing liquids and slurries	COLIWASA, SW-846, Chapter 9, glass thief or pipet, or 219-S Waste Handling Facility sampling system
Solidified liquids	Sludges	Trier, SW-846, Chapter 9, scoops and shovels
Sludges	Sludges	Trier, SW-846, Chapter 9, scoops and shovels
Soils	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels
Absorbents	Large-grained solids	Large trier, SW-846, Chapter 9, scoops and shovels
Wet absorbents	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
Process solids and salts	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
	Dry powders or granules	Thief, SW-846, Chapter 9, scoops and shovels
	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels
	Large-grained solids	Large trier, SW-846, Chapter 9, scoops and shovels
Ion exchange resins	Moist powders or granules	Trier, SW-846, Chapter 9, scoops and shovels
	Dry powders or granules	Thief, SW-846, Chapter 9, scoops and shovels
	Sand or packed powders and granules	Auger, SW-846, Chapter 9, scoops and shovels

COLIWASA = composite liquid waste sampler.
* other ASTM approved equipment could be used to collect samples.

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5.0 SELECTING A LABORATORY, LABORATORY TESTING, AND ANALYTICAL METHODS

Quality control (QC) is applied in implementing both sampling and analytical techniques. Specific performance standards for quality assurance (QA) and QC procedures for individual sampling and analysis activities are dynamic and are revised as warranted to reflect technological advances in available, appropriate techniques. These performance standards are described in policies maintained and used at 222-S Laboratory Complex and are available for review by Ecology upon request. QA/QC practices will comply with WAC 173-303-110(2) and (3) and *Hanford Facility Agreement and Consent Order*, Action Plan, Section 6.5 requirements.

5.1 SAMPLING PROGRAM

The selection of sample collection devices within a laboratory depends on the type of sample, the sample container, the sampling location, and the nature and distribution of regulated constituents in the waste. In general, the methodologies used correspond to those referenced by WAC 173-303-110(2) or SW-846 Chapter 9. The selection and use of the sample collection device are supervised or performed by a person who is thoroughly familiar with sampling protocols.

Sampling equipment is constructed of materials that are nonreactive with the waste being sampled. Materials such as glass, polyvinyl chloride plastic, aluminum, or stainless steel could be used. Care is taken in the selection and use of the sample collection device to prevent contamination of the sample and to ensure compatibility with waste being sampled. Individual container samples that are compatible could be composited before testing.

5.2 ANALYTICAL PROGRAM

A program of analytical QC practices and procedures has been developed on the Hanford Facility to ensure that precision, accuracy, representativeness, and completeness are maintained throughout the laboratories. Good laboratory practices that encompass sampling, sample handling, housekeeping, and safety are maintained at onsite laboratories. The testing methods described in Section 3.0 are intended to comply with WAC 173-303-110(3) requirements.

Laboratories make changes to procedures (both regulatory and internally developed procedures) for a variety of reasons. The nature of the change can very form minor to significant. Therefore, this document defines three categories of changes made in the laboratory. Laboratory conformance to the documentation requirements for each of these changes shall ensure that the end-user of the data is aware of the significance of the changes and the impact expected on the data. A limited number of methods must be followed as written due to the regulations encompassing how the results will be used.

5.2.1 Substitution

Substitution is an adjustment in a procedure which a reasonable, technically competent person would be expected to consider equivalent. Substitution would have no significant effects on final results. This would be clearly evident on the QC data associated with the final results. Therefore, substitution would be considered inconsequential. Additional information regarding the latitude given to the laboratory can be found in Sections 2.1.1 and 2.1.2 of SW- 846.

5.2.1.1 Substitution Examples

Examples include substitution of equivalent columns yielding equivalent performance characteristics (use of a capillary column as opposed to a packed column would not meet this definition), and substitution of different glassware that results in the same overall digestion, extraction, of separation efficiency. Ratioed sample and reagent reductions are not consideration substitution.

5.2.2 Deviation

Deviation is divergence from the original procedure that does not adversely impact the analyst's ability to meet the precision, accuracy, detection limit, selectivity, and QC criteria of the procedure. Therefore, the decision to deviate shall be based on published literature (e.g., alternate methods) and/or known sample chemistry.

5.2.2.1 Deviation Example

Examples include using packed versus capillary column and, on limited applications, using different sample sizes accompanied by subsequent ratioed changes to all reagents and standard additions while maintaining the same final extract concentration. In some very limited cases, deviation might include varying reagent additions to the effect similar digestion and/or analytical performance to the original procedure (e.g., addition of matrix modifier). A deviation could also be an additional precipitation reaction resulting in enhanced analyte purification. Such deviations can only be considered to be valid if the originally agreed upon precision, accuracy, sensitivity, and selectivity are maintained.

5.2.2.2 Cautions on Using Deviations

The analyst is cautioned in using ratioed reductions. In some cases, significant reductions in the quality of materials tested impacts the ability to guarantee reproducible results in terms of the sample matrix precision. For example, in reducing the sample preparation weight from 1.0 grams to 0.1 grams, the ability of the laboratory to address sample heterogeneity concerns is brought into question. However, the laboratory could perform replicate preparations to address this concern and provide more useful information related to sample heterogeneity. Additional documentation is required in this case.

Also, the analyst is cautioned in varying reagent additions. Clearly, matrix adjustment could be necessary to effect similar analyte and isotope performance under a given technique. However, the ability to reproduce such situations hinges on the existence of a documented record of the deviation.

5.2.3 Modification

Modification changes the character of a procedure, and thereby, potentially limits a procedure's ability to meet the originally stated precision, accuracy, detection limit, selectivity, and QC criteria. Because the impact of such a modification cannot be ascertained before implementation, it must be demonstrated by application.

5.2.3.1 Modification Examples

Example include using closed vessel digestion instead of standard beaker digestion, using alternate reagents for waste management or safe handling considerations, using different sample sizes accompanied by non-ratioed reagent addition, using alternative analytical technology, and using extended holding times.

Mixed waste samples provide a good example of the need for method modification. These samples can contain high levels of radioactivity that can create the necessity for analytical procedure modifications. In

particular, Hanford Site samples could contain salts that negatively impact the efficiency of published methods designed for the preparation of waters, soils, and sludges. Disposal of mixed waste also impacts the decision to use a procedure as is or to modify it to reduce the amount of waste produced during processing. Special handling techniques might need to be employed to keep the exposure to radioactive agents to a ALARA; the ALARA principle could impact holding times.

5.3 CONCLUSION

The aforementioned sampling and analysis QA/QC practices help ensure that the data obtained are sufficiently precise and accurate for the decision required of the dangerous and/or mixed waste stream being sampled. The sampling and analysis results are used by 222-S Laboratory Complex personnel or designated acceptance organization personnel to:

- Determine acceptable knowledge
- Approve pre-transfer/shipment documentation
- Determine the appropriate method of treatment, storage, and/or disposal of a particular waste, or
- Determine if a treatment standard has been met.

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6.0 SELECTING WASTE RE-EVALUATION FREQUENCIES

The re-evaluation (repeat and review) frequency to review a waste generating process and associated waste profile documentation is every two years, or more often if:

- Conditions in WAC 173-303-300(4)(a) or (b) arise,
- Off-unit/offsite waste is rejected after receiving the waste.

When a waste generating process and associated waste profile documentation is re-evaluated, 222-S Laboratory Complex personnel or designated waste acceptance organization could request the organization generating the waste to do one or more of the following:

- Verify the current waste profile documentation is accurate
- Supply new waste profile documentation.

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7.0 SPECIAL PROCEDURAL REQUIREMENTS

Special procedural requirements for the 222-S Laboratory Complex TSD unit includes procedures for receiving waste generated outside the 222-S Laboratory Complex, procedures for ignitable, reactive, and incompatible waste, and provisions for complying with federal and state land disposal restriction requirements.

7.1 PROCEDURES FOR RECEIVING WASTE GENERATED OUTSIDE THE 222-S LABORATORY COMPLEX

Mixed waste received from outside the 222-S Laboratory Complex is referred to as off-unit/offsite waste. Off-unit/offsite waste acceptance procedures are identified in Section 2.2 and 2.3. The procedures are different because of either regulatory requirements pertaining to offsite waste receipt, or the waste generation and management process can not be detailed in the waste analysis plan to address acceptable knowledge requirements. Once off-unit/offsite waste is accepted into the 222-S Laboratory Complex TSD unit, the mixed waste is managed as mixed waste generated within the 222-S Laboratory Complex.

7.2 PROCEDURES FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE

The 222-S Laboratory Complex TSD unit accepts ignitable, reactive, or incompatible waste. The following precautions are taken before these waste types are accepted.

- Pre-transfer review for 222-S Laboratory Complex generated waste identifies whether the waste is ignitable, reactive, or incompatible. Pre-transfer/shipment review and/or chemical screening identify whether the off-unit/offsite waste is ignitable, reactive, or incompatible.
- If analysis of the characterization information leads to a conclusion that the waste is an ignitable or reactive waste, acceptance of the waste into 222-S Laboratory Complex waste management units must be conducted pursuant to WAC 173-303-395(1), and as applicable, the waste management specific requirements contained in WAC 173-303-630(8) or –640(9).
- If analysis of the characterization information leads to a conclusion that the waste is an incompatible waste, acceptance of the waste into 222-S Laboratory Complex waste management units must be conducted pursuant to WAC 173-303-395(1), and as applicable, the waste management specific requirements contained in WAC 173-303-630(9) or –640(10). A compatibility review shall be performed to identify storage and management requirements.

Mixed waste in the 219-S Waste Handling Facility tank system consists of dilute aqueous waste with low organic content. Transfer of waste into the 219-S Waste Handling Facility is performed with an adequate amount of flush water to prevent corrosion of the tank system components. From *A Method for Determining the Compatibility of Hazardous Wastes* (EPA 1980), the 219-S Waste Handling Facility aggregated waste classifies as Reactivity Group Number (RGN) 106, "water and mixtures containing water." This type of waste could exhibit some reaction with concentrated acids, certain organic or inorganic compounds that could generate innocuous or flammable gases in contact with water, and inorganic sulfides. Additionally, the mixed waste contains mineral acids at low concentrations, which would be incompatible with cyanides, inorganic sulfides, and water reactive substances.

Given the conditions under which waste is managed in the 219-S Waste Handling Facility, compliance with WAC 173-303-395(1)(b) is assured by the following screening tests for off-unit/offsite waste:

- The pH of mixed waste is measured to identify concentrated acids and bases to ensure adequate flush volumes are used.
- A water mix screening test is performed in order to identify any potentially water-reactive waste and to ensure an appropriate introduction rate. This includes waste that generates heat or gases in contact with water.
- Cyanide and sulfide screening tests are performed to ensure that uncontrolled toxic gases do not threaten human health and the environment.

7.3 PROVISIONS FOR COMPLYING WITH FEDERAL AND STATE LAND DISPOSAL RESTRICTION REQUIREMENTS

Dangerous and/or mixed destined for disposal is subject to the LDRs of WAC 173-303-140 and 40 CFR 268 with the exception of transuranic mixed waste. Transuranic mixed waste is anticipated to be disposed at the Waste Isolation Pilot Plant and is not subject to federal or state-only LDR treatment standards. Chemical constituents subject to LDRs are identified in 40 CFR 268 by reference in WAC 173-303-140. Waste must meet certain treatment standards, as specified in 40 CFR 268 and WAC 173-303-140, prior to disposal. Although disposal does not occur within the 222-S Laboratory Complex, LDR requirements apply to the generation, storage, and treatment of dangerous and/or mixed waste preceding disposal.

If arrangements are made between the organization generating the waste and 222-S Laboratory Complex personnel, LDR information can be obtained on waste while the waste is being managed in the 222-S Laboratory Complex container management units. Federally based LDR information for dangerous and/or mixed waste in the container storage units will be obtained in accordance with 40 CFR 268.7(a). For waste managed in a container storage unit believed to meet treatment standards, information is obtained through sampling and analysis of a grab sample while waste is managed in the container storage waste management unit, or arrangements are made with subsequent TSD unit personnel to obtain the acceptable knowledge capable of proving the treatment standard is met.

For the 219-S Waste Handling Facility, applicable treatment standards from 40 CFR 268.40 will be identified prior to the introduction of waste into the tank system to identify specified technologies. Underlying hazardous constituents (UHC) for a batch of mixed waste to be transferred to another onsite TSD unit or offsite TSD facility will be determined based on existing knowledge of the waste constituents contained on waste profile documentation and sampling and analysis results from a grab sample of aggregated tank system waste. A grab sample will be taken from every 5th batch of aggregated tank system waste to be transferred or once a calendar year, whichever occurs sooner. Volatile organics, pesticides and herbicides, and constituents not found at the Hanford Facility are not reasonably expected to be present in aggregated 219-S Waste Handling Facility waste. UHC parameters selected for testing will include:

- Semivolatile organic compounds identified by SW-846 Methods listed in Table 3-2
- Inorganic parameters identified in Table 3-2 except for sodium.

For dangerous and/or mixed waste managed within the 222-S Laboratory Complex TSD unit, if the waste meets federal treatment standards, a certification must be prepared that the waste meets the treatment standards. 222-S Laboratory Complex personnel or designated acceptance organization will prepare appropriate LDR certifications and document knowledge as either a storage unit or a treatment unit managing restricted waste.

7.3.1 Waste Treatment

Within the 222-S Laboratory Complex TSD unit, waste treatment only occurs in the 219-S Waste Handling Facility. Treatment does not occur in the container storage waste management units. Specific treatment activities performed in the 219-S Waste Handling Facility tank system include deactivation, pH adjustment, chemical additions, and treatment of state-only extremely hazardous waste.

- Deactivation, as defined in 40 CFR 268.42, is used to remove the characteristic of mixed waste due to ignitability (D001), corrosivity (D002), and/or reactivity (D003). Treatment techniques include neutralization, and controlled reaction with water. Controlled reaction with water is the primary method of treatment for reactive waste such as sodium metal, strong acids and bases, or incompatible waste.
- pH adjustment is the primary method of treatment for corrosive waste that has a pH less than or equal to 2 and/or greater than or equal to 12.5. Examples of bases that could be used as pH adjusting agents include sodium hydroxide, calcium hydroxide, or calcium carbonate. Examples of acids that could be used to neutralize bases are hydrochloric acid and sulfuric acid.
- Chemical additions occur to make the waste more amenable for storage in the DST System. Typically, sodium nitrite is added for corrosion protection.
- Treatment of state-only extremely hazardous waste (WT01 and WP01) is performed in accordance with RCW 70.105.050(2) and/or WAC 173-303-140(4)(a) as applicable.

7.3.2 Analytical Methods

If sampling and analysis is performed on a waste to demonstrate an LDR has been met, the treatment standard may specify a method that must be used. Methods identified in Section 3.0 meet LDR requirements. A grab sample is used to obtain the representative sample for containerized waste.

7.3.3 Land Disposal Restriction Certification of Treatment

When LDR treatment has been completed and sample results (if applicable per 40 CFR 268.40 and WAC 173-303-140) have verified the LDR treatment is successful, certification of the LDR treatment is completed by the 222-S Laboratory Complex TSD unit personnel or designated waste acceptance organization. The certification statement is prepared in accordance with 40 CFR 268.7 or 268.9. Where a LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268.40 and WAC 173-303-140, the information contained in the notice is obtained.

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8.0 RECORDKEEPING

Recordkeeping requirements that are applicable to this WAP are described in Chapter 12.0, and as follows:

- Confirmation records described in Section 2.0 will be maintained in accordance with Condition II.I.1.b of the Hanford Facility RCRA Permit, Dangerous Waste Portion.
- Waste profile documentation described in Section 2.0 will be maintained in accordance with Condition II.I.1.j of the Hanford Facility RCRA Permit, Dangerous Waste Portion.
- LDR records described in Section 7.3 will be maintained in accordance with WAC 173-303-380(1)(j)(k)(n) or (o) in the 222-S Laboratory Complex unit-specific portion of the Hanford Facility operating record.

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9.0 REFERENCES

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APHA, 1992, *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, Washington, D.C.

DOE/RL-88-21, *Hanford Facility Dangerous Waste Part A Permit Application*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 1995b, "Hanford Facility RCRA Permit, Dangerous Waste Portion", Washington State Department of Ecology, Olympia, Washington.

EPA-600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", U.S. Environmental Protection Agency, Cincinnati, Ohio.

EPA 1980, "A Method for Determining the Compatibility of Hazardous Wastes", U.S. Environmental Protection Agency, PB80-221005, April 1980.

EPA 1994, "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes", U.S. Environmental Protection Agency, OSWER 9938.4-03, PB94-963603, April 1994.

HNF-IP-0263-222S, *Building Emergency Plan for the 222-S Laboratory Complex*, Fluor Hanford, Richland, Washington.

SW-846, "Test Methods for Evaluating Solid Waste", latest edition, U.S. Environmental Protection Agency, Washington, D.C.

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CONTENTS (CONT)

FIGURES

TABLE

4.0 PROCESS INFORMATION [D]

This chapter discusses the processes and equipment used for treatment and storage of dangerous and mixed waste in the 222-S Laboratory Complex. The 222-S Laboratory Complex can receive, package, repackage, sample, treat, and store dangerous and/or mixed waste from onsite generating units and/or offsite generators. All incoming dangerous and/or mixed waste received at the 222-S Laboratory Complex is managed in accordance with WAC 173-303.

4.1 STORAGE AND TREATMENT

The 222-S Laboratory Complex has the following four waste management units used for the treatment and storage of solid and/or liquid dangerous and/or mixed waste:

- 222-S DMWSA--storage of solid and/or liquid dangerous and/or mixed waste (Figure 4-1)
- Room 2-B--Storage of solid and/or liquid mixed waste (Figure 4-2)
- Room 4-E--Storage of solid and/or liquid mixed waste (Figure 4-3)
- 219-S Waste Handling Facility--treatment and storage of liquid mixed waste (Figure 4-4).

4.1.1 Container Storage

A portion of Room 2-B provides container storage of solid and/or liquid mixed waste. The maximum storage capacity in Room 2-B is 2,500 liters. Figure 4-2 shows a typical container configuration in Room 2-B.

Room 4-E provide container storage of solid and/or liquid mixed waste. The maximum storage capacity in Room 4-E is 1,450 liters. Figure 4-3 shows a typical container configuration in Room 4-E.

The 222-S DMWSA is located on the north side of the 222-S Analytical Laboratory and consists of two metal storage structures that have been placed on an elevated platform. Each structure is divided into two cells (four total). The maximum process design capacity for container storage in the 222-S DMWSA (Figure 4-1) is 24,520 liters.

4.1.2 Tank Treatment and Storage

The 219-S Waste Handling Facility, located near the northeast corner of the 222-S Analytical Laboratory, contains four tanks: tank 101 (15,000 liters), tank 102 (15,000 liters), tank 103 (6,000 liters), and tank 104 (7,200 liters). Tank 103 has been pumped, rinsed, and is out of service (Figure 4-4) (refer to Chapter 11.0). As discussed in Section 4.3, tanks 101 and 102 are existing tanks, whereas tank 104 is a new tank. The integrity assessments for the 219-S Waste Handling Facility have been certified by an independent qualified registered professional engineer (Administrative Record: DOE/RL-91-27, Appendix 4B). The tanks are located in a belowground concrete vault that has been upgraded with stainless steel liners to comply with requirements for secondary containment.

Liquid mixed waste that meets the waste acceptance criteria for the 219-S Waste Handling Facility is transferred to the tank system. Introduction points to the 219-S Waste Handling Facility are shown in Figure 4-4.

The liquid mixed waste is treated in tank 102 with sodium hydroxide and with sodium nitrite to adjust pH and provide corrosion protection. The process design capacity during tank treatment is 780 liters per day. Although this capacity could be exceeded on any given day, this capacity will not be exceeded over any given quarter (e.g., January 1 to March 31). Compliance with the process design capacity is based on

quarterly volumes. The liquid mixed waste is transferred from the 219-S Waste Handling Facility to the DST System, or another onsite TSD unit, or to an offsite TSD facility. The interface waste management boundary between the 219-S Waste Handling Facility and the DST System is the 'cold face' or outside wall of the 219-S Waste Handling Facility ~~(Appendix 4B-3)~~.

4.2 CONTAINERS [D-1]

Dangerous and/or mixed waste typically is stored in containers (Table 4-1). The following sections provide a description of the containers used to store the waste generated in the 222-S Laboratory Complex, a discussion of the container management practices (packaging, repackaging and sampling) employed in the three storage locations, and the requirements associated with secondary containment.

4.2.1 Description of Containers [D-1a]

Liquid dangerous and/or mixed waste is contained in liquid-tight bottles placed in labpack containers or is transferred to the 219-S Waste Handling Facility. Solid dangerous and/or mixed waste is contained in cardboard, polyethylene, glass, metal, or plywood containers.

Containers are chosen based on the compatibility with the waste, consistent with the requirements in WAC 173-303-630(4). Table 4-1 lists the inner containers, sorbent materials, outer containers, and labels typically used in containerizing the stored waste.

4.2.2 Container Management Practices [D-1b]

Container management practices include packaging, repackaging, or sampling waste in containers, transferring containers to and from the 222-S DMWSA, Room 2-B, and/or Room 4-E storage areas, and methods for handling and storage.

Waste handling, storage, and transfer methods are designed to ensure that dangerous and/or mixed waste containers remain closed in accordance with WAC 173-303-630(5) during storage, and that containers are not opened, handled, or stored in an unsafe manner. Containers will be opened to add or remove waste, package or repackage waste, or to sample waste. Specific actions include, but are not limited to, the following.

- To ensure safety, the storage areas are inspected daily in accordance with Chapter 6.0. Weekly inspections and inventories are made of the containers in the 222-S DMWSA, Room 2-B, and Room 4-E. All inspections and inventories, which are conducted by trained personnel, are performed to ensure that containers are being stored safely and correctly (refer to Chapter 6.0 for information on inspections).

- Access to the 222-S DMWSA, Room 2-B, and Room 4-E is controlled at all times. These waste areas can be accessed only by authorized personnel.

- All containers are inspected routinely for signs of damage such as dents, distortion, corrosion, or scratched coating before being placed in use. Current operating practices indicate the use of new containers. Any reused or reconditioned container is inspected before the container is placed into use. All damaged or leaking containers are placed in an overpack container. The Hanford Site standard overpack container typically is used for this purpose. Overpack containers typically are made of steel or polyethylene and selection for use is based on waste compatibility. Overpacked containers are moved either to an onsite TSD unit for future management or managed within the 222-S Laboratory

Complex. Overpacked containers can be repackaged and/or sampled at the 222-S Laboratory Complex waste management units.

- Only authorized personnel prepare and approve documents associated with the handling and transferring of dangerous and mixed waste.

- Spilled waste is managed in accordance with the building emergency plan (Chapter 7.0~~Appendix 7A~~). Documentation of these activities is maintained in the 222-S Laboratory Complex (unit-specific) operating record.

- WAC 173-303-630(8)(b) requirements are met for stored ignitable and reactive waste (refer to Section 4.2.5).

Containers are segregated by waste type and compatibility before placement in the 222-S DMWSA. All waste containers placed into storage are entered in the area logbook. All discrepancies identified on receipt of mixed waste are documented (Chapter 3.0~~, Appendix 3A~~). Discrepancies are resolved with the offeror (Chapter 3.0~~Appendix 3A~~) of the mixed waste or the transfer/shipment is rejected. Containers that require packaging, repackaging, or sampling are processed in the 222-S DMWSA, Room 2-B, or Room 4-E.

4.2.2.1 Packaging and Transfer of Waste in Containers

Documentation regarding the packaging configuration of waste includes a container inventory sheet, a physical and chemical description, type and size of container, sorbent used, labeling and marking requirements, and information on segregation requirements. After all the waste to be packaged has been placed in the container, the lid is fastened on the container and properly closed. The container is weighed and the gross weight is marked on the container. A package identification number (PIN) and quality control stamp are affixed to the outer container.

4.2.2.2 Storage Configuration within Room 2-B Storage Area

Containers of mixed waste are stored on portable sumps (e.g., spill pallets) in Room 2-B. A total of up to 12, 208-liter containers can be stored within Room 2-B. Space between structures and containers is maintained at all times to allow adequate access for inspection and emergency actions. Containers with incompatible waste are separated spatially and/or by a physical barrier. Figure 4-2 shows the general layout of equipment and waste handling operations in Room 2-B. More than 12, 208-liter containers can be stored provided the quantity of waste does not exceed 2,500 liters.

4.2.2.3 Storage Configuration Within Room 4-E Storage Area

Containers of mixed waste are stored on the floor or in portable sumps (e.g., spill pallets) in Room 4-E. A total of up to six 208-liter containers can be stored within Room 4-E. Space between structures and containers is maintained at all times to allow adequate access for inspection and emergency actions. Containers with incompatible waste are separated spatially and/or by a physical barrier. Figure 4-3 shows the general layout of equipment and waste handling operations in Room 4-E. More than six 208-liter containers can be stored provided the quantity of waste does not exceed 1,450 liters.

4.2.2.4 Storage Configuration Within 222-S Dangerous and Mixed Waste Storage Area

The 222-S DMWSA is divided into four cells. Dangerous waste is typically stored separately from mixed waste. All incompatible waste is segregated by storing incompatible waste in separate containers and providing separate secondary containment. For example, corrosive waste (acid and caustic waste) is

stored in separate containers and is placed in or over separate secondary containment. One possible arrangement of waste in the 222-S DMWSA is shown in Figure 4-1. The storage configuration in the 222-S DMWSA complies with the aisle space requirements in WAC 173-303-340(3) and -630(5)(c), as well as incompatible waste requirements in -630(9). The quantity of waste stored will not exceed the secondary containment capacity requirements of WAC 173-303-630(7) or the capacity identified in Chapter 1.0. Containers can be stacked two-high in limited circumstances (i.e., container weight and limited movement of handling equipment).

4.2.2.5 Moving Containers out of the 222-S Dangerous and Mixed Waste Storage Area, Room 2-B, and/or Room 4-E Storage Areas to Transfer Vehicle

Personnel inspect the containers to ensure containers are labeled properly and are in sound condition before transfer from the 222-S Laboratory Complex to another onsite TSD unit or offsite TSD facility. Containers are removed from the 222-S DMWSA, Room 2-B, and Room 4-E to the transfer vehicle via dolly, hand truck, cart, or other method determined to meet the requirements of WAC 173-303-630(5)(b). The containers are loaded onto the transfer vehicle, continuously maintained in an upright position, and are not stacked during transport. The total load weight is not allowed to exceed truck capacity. The containers are restrained during transport to minimize movement.

4.2.2.6 Transfer Documentation

Waste tracking forms are completed and accompany a transfer of mixed or dangerous waste into and from the 222-S DMWSA, Room 2-B, and Room 4-E to another onsite TSD unit.

4.2.3 Labeling System [D-1c]

Each container is marked with a PIN that is used for tracking. The PINs are recorded on the container inspection checklist. A hazardous waste label is affixed. Each container is labeled with the appropriate major risk(s) such as 'corrosive', 'toxic'. If a label is damaged or information is not legible, the old label is removed completely and a new label is affixed containing pertinent information from the old label. Containers rendered empty in accordance with WAC 173-303-160 have labels removed.

4.2.4 Containment Requirements for Storing Containers [D-1d]

The 222-S DMWSA consists of two enclosed metal storage structures. Room 2-B and Room 4-E are rooms within the 222-S Analytical Laboratory.

4.2.4.1 Secondary Containment System Design and Operation [D-1d(1)]

Within the two structures of the 222-S DMWSA, there are two storage cells separated by a center wall. Each storage cell is provided with its own secondary containment called a basin. The basins are located beneath the steel platform (floor grating) in the cell. Each basin is 3.4 meters by 4.6 meters by 0.15 meter (deep) and is constructed of 10 gauge carbon steel, which in turn is lined with a chemical resistant coating for resistance to acids, alkalies, solvents, and salts. Each basin is capable of containing approximately 2,300 liters for a 222-S DMWSA secondary containment total of approximately 9,200 liters. ~~An engineering drawing (H-2-78364, sheet 7) of the storage area is provided in Appendix 4A.~~

Should a leak or spill occur within a cell, the spilled waste would be contained in the respective basin or separate secondary containment. The basin is sealed to prevent liquids from migrating to the other basin in the structure. The leak or spilled waste would not come in contact with the other contained waste as the floor grating covering each basin only allows liquids to flow down into the basin. All leaked and/or

spilled waste will be removed using sorbent pads or a portable pump, depending on the volume of the leak or spill.

Waste stored in Room 2-B is placed on either spill pallets or other secondary containment devices. These pallets or containment devices are of suitable size to contain the volume of the largest container or 10 percent of the volume of all the containers whichever is greater.

Waste stored in Room 4-E is placed on either spill pallets or other secondary containment devices. These pallets or containment devices are of suitable size to contain the volume of the largest container or 10 percent of the volume of all the containers whichever is greater, except waste that does not contain free liquids, or waste that is not ignitable or reactive. Waste that does not contain free liquids or is not ignitable or reactive will be placed on the floor because this waste is otherwise protected from contact with accumulated liquids.

4.2.4.1.1 System Design [D-1d(1)(a)]

Containment consists of two structures that face one another and open onto a common loading platform ~~(Appendix 4A)~~. Each storage structure measure 9.8 meters long by 3.7 meters wide by 2.7 meters high. Each storage structure is divided into two identical separate compartments or cells (a total of four cells). Each cell has a door that opens onto a loading platform that lies between the two storage structures. The loading platform is approximately 3 meters in width. The storage structures and loading platform are elevated approximately 50 centimeters above the existing grade. Inside the 222-S DMWSA, containers rest on a chemical resistant nonskid fiberglass grate above a steel secondary containment basin that is free of cracks and has a chemical resistant coating.

The loading platform, constructed between the two 222-S DMWSA structures, consists of a steel grating that rests on a lattice of steel beams placed between the two structures. A protective fence is placed at the two open ends for operational safety. No heavy equipment, fork lifts, etc., are allowed to operate on the loading platform or be used in the storage cells to move the waste containers. A hoist, located on the south end of the 222-S DMWSA, is used to lift containers to the loading platform. On the opposite end (north end) of the loading platform, containers can be raised manually or mechanically raised from the asphalt pad to the platform using a folk lift. Once the waste containers are placed on the loading platform, the containers are moved in and out of the storage cells.

The containment basins are enclosed and protected from precipitation ~~(Appendix 4A)~~. Each storage structure has a roof that collects and sheds the precipitation to the rear of the building, away from the doorways and loading platforms. No gutters and/or downspouts are included in the design because of the low annual rainfall (approximately 15 centimeters per year). To prevent any standing water from accumulating beneath the 222-S-DMWSA, the surrounding grade is sloped.

4.2.4.1.2 Structural Integrity of Base [D-1d(1)(b)]

The 222-S DMWSA structures rest on a system of footings and are elevated above a concrete pad at the back of the 222-S Analytical Laboratory ~~(Appendix 4A)~~. The flooring for the structure is formed by placing (in parallel) a set of structural steel I beams that span the entire length of each storage structure (approximately 9.8 meters). A channel was welded to the ends of the I beams to form a closed cell. The structures are supported at each corner and are coupled to the concrete slab using approved seismic constraints.

The sump or secondary containment rests on top of the I beams. The grate that forms the flooring in each cell rests on a set of cross channels that in turn rest on the bottom of the sump. The set of cross channels

is oriented perpendicular to the set of structural steel I beams. The floor and sump were constructed to support the weight of the containers or leaked liquids respectively.

4.2.4.1.3 Containment System Capacity [D-1d(1)(c)]

The volume of the containment system is required to be 10 percent of the volume of all containers stored within the system or the volume of the largest container whichever is greater. As calculated in Section 4.2.4.1, the containment storage provided by each sump is approximately 2,300 liters. Based on these calculations and the physical limitation of the storage cell, secondary containment exceeds the 10 percent requirement.

Because the 222-S DMWSA is a covered storage area, precipitation is prevented from entering the structures and therefore is not included in these calculations. Furthermore, because dry chemicals are used for fire control, no adjustment for use of an automatic sprinkling system (20 minutes of fire water) is necessary in the containment system capacity calculations. A backup wet system is available with a hose connection accessible to firefighting personnel. In the event that the dry suppression system fails or does not contain the fire, the wet sprinkler system can be used by connection to a nearby water hydrant and is activated manually from outside the structures. An existing water hydrant is located within a few meters from the northwest corner of the storage area ~~(Appendix 4A)~~. The water hydrant provides additional backup emergency fire protection.

4.2.4.1.4 Control of Run-On [D-1d(1)(d)]

The only plausible major run-on events could result from either a thunderstorm or a water main break. No floods are predicted to affect the 222-S DMWSA because the 222-S DMWSA is located approximately 100 hundred meters above the Columbia River floodplain. The threat from run-on resulting from either a thunderstorm or water main break is considered highly unlikely because the floor of the 222-S DMWSA is elevated 48 centimeters above the surrounding grade and 25 centimeters above the concrete pad on which the structures rest. Furthermore, the threat from any standing water is reduced because the surrounding grade has been contoured or sloped to drain water away from the storage structures to a catchment located to the northwest.

Room 2-B and Room 4-E are located inside the 222-S Analytical Laboratory. As a result, no flooding and/or run-on, resulting from either a water main break or thunderstorm, is included in the design. A temporary portable berm could be used for purposes of spill control when waste is transferred from large containers (208 liters) to the 219-S Waste Handling Facility through Hood 16 in Room 2-B.

4.2.4.2 Removal of Liquids from Containment System [D-1d(2)]

The equipment used for removal of large quantities of liquid spilled in the containment sumps is a hand-held pump or vacuum truck. Sorbents are used for removal of small quantities of liquid. In the event of a spill, a recovery plan would be developed, as necessary, based on input from the building emergency director and the environmental compliance officer. The spilled material will be removed from the containment system in as timely a manner as is necessary to prevent overflow. If the spilled material is unidentified, sampling would be performed and the waste material stored in container(s) at the 222-S DMWSA until analytical results were received. The same procedure would be used to remove liquid from the containment basins in the 222-S DMWSA and from spill pallets and portable containment in Room 2-B and Room 4-E.

4.2.5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers [D-1f]

A general description on the management of dangerous waste storage containers in the 222-S DMWSA is provided in Section 4.2.2.4. Incompatible waste is stored in separate containers. Figures 4-1, 4-2, and 4-3 show a typical layout of container storage in each of the storage units. The following sections provide information on the management of reactive, ignitable, and incompatible waste in containers. The 222-S DMWSA has a pre-engineered dry chemical fire protection system designed to protect both compartments. The suppression system is activated by a Underwriters Laboratory-listed fusible link detection system.

The fire protection system used in Room 2-B and Room 4-E consists of heat-activated ceiling sprinklers, smoke detectors, and alarms. Each ceiling sprinkler system is heat activated. Smoke detectors are located in the ceiling panels and are connected to the fire alarms. The heat-activated sprinklers also activate the fire alarms that are monitored around-the-clock by the Hanford Fire Department.

4.2.5.1 Management of Ignitable and Reactive Waste in Containers [D-1f(2)]

The 222-S Analytical Laboratory operations generate ignitable waste that is managed in accordance with WAC 173-303-630(8)(b). Separate labpack containers are used, and other waste types are not packed with ignitable waste. Incompatible ignitable waste is separated from containers of other waste types in the 222-S DMWSA, Room 2-B, and Room 4-E. Within Room 2-B and Room 4-E, ignitable waste is placed on a separate spill pallet.

Reactive cyanide- and sulfide-bearing waste could be generated occasionally at the 222-S Analytical Laboratory. Incompatible reactive waste is placed in separate overpack containers and no other waste is packed with reactive waste. Reactive waste stored in the 222-S DMWSA is placed over a separate collection basin of the containment system. Within Room 2-B and Room 4-E, reactive waste is placed on a separate spill pallet. Within the 222-S DMWSA, reactive waste is segregated by placing waste in separate containers.

4.2.5.2 Design of Areas to Manage Incompatible Waste [D-1f(3)]

No incompatible waste is packed in the same container. Containers of incompatible waste are separated in the 222-S DMWSA in accordance with WAC 173-303-630(9)(c). Personnel inspect the containers for proper packaging, labeling, marking, and waste tracking forms before transport. Within Room 2-B and Room 4-E, incompatible waste is placed on a separate portable sump (e.g., spill pallet).

4.3 TANK SYSTEM [D-2]

This section describes the design and operation of the 219-S Waste Handling Facility for treatment and storage of mixed waste. Major topics discussed in this section include the following:

- Design, installation, and assessment of tanks and ancillary equipment
- Secondary containment system including leak detection
- Tank corrosion and erosion prevention
- Tank management practices
- Ventilation system to control air emissions.

This section describes the current equipment and the upgrades to the 219-S Waste Handling Facility. A general description of the 219-S Waste Handling Facility is included in Chapter 2.0. The waste handling and transfer system is shown in Figure 4-4.

4.3.1 Design, Installation, and Assessment of Tank System [D-2a]

The 219-S Waste Handling Facility includes three active tanks (tank 101, tank 102, and tank 104), and ancillary equipment connected to the 222-S Analytical Laboratory. Ancillary equipment is defined in WAC 173-303-040.

The tanks are located in a belowgrade concrete vault. Two stainless steel liners have been inserted in the concrete vault. Liquid mixed waste flows by gravity from the 222-S Analytical Laboratory through a system of double-walled pipelines to the tanks located in the 219-S Waste Handling Facility.

4.3.1.1 Design Requirements [D-2a(1)]

The 219-S Waste Handling Facility was constructed in 1951 in accordance with the 1949 edition of the Uniform Building Code. Completed in 1999, the 219-S Waste Handling Facility was upgraded using the 1994 Uniform Building Code to include the following:

- Double containment pipelines from several locations within the 222-S Analytical Laboratory to the 219-S Waste Handling Facility
- An integrity assessment of the existing tanks (tanks 101 and tank 102) as provided in the Administrative Record, DOE/RL-91-27, Appendix 4B-1 and a design, installation, and inspection of a new tank (tank 104) as provided in the Administrative Record, DOE/RL-91-27, Appendix 4B-2.
- Placement of a stainless steel liner in each of the two cells that house the storage and treatment tanks (tanks 101, 102, and 104)
- Completion of design, construction, and installation inspections.

4.3.1.1.1 Description of Ancillary Equipment

A total of six waste transfer pipelines connect the 222-S Analytical Laboratory to the 219-S Waste Handling Facility. Four of these pipelines currently are operational. A description of the four pipelines is provided in the Administrative Record, DOE/RL-91-27, Appendix 4B-2. Figure 4-4 shows the piping layouts and connections of these lines to the various points of discharge in the 222-S Analytical Laboratory. Ancillary equipment is equipped with secondary containment or is inspected daily with the exception of those portions noted in Section 4.3.3.

The pipelines were installed belowgrade and were designed to transfer waste using gravity flow. The minimum slope is 1.87% to facilitate flow. The pipelines are encased, double-containment design consisting nominally of a 2-inch pipe inside a 4-inch pipe, although a 1-inch pipe encased in a 2-inch pipe was used for some of the hookups. The smaller pipe carries the waste and the larger pipe provides the secondary containment. Both the primary and secondary pipe are fabricated from Schedule 40, 304L stainless steel. The selection of stainless steel was based on the characteristics and temperature of the waste. A discussion of the design specifications and engineering assessment to allow design certification is provided in the Administrative Record, DOE/RL-91-27, Appendices 4B-1, 4B-2, 4B-3, and 4B-4. Included in these appendices are the inspection and/or construction 'as-built' certification that ensures the new underground waste transfer pipeline was constructed in accordance with the design.

Leak detection requirements were factored into the design. Leak detection probes were placed in the annulus and are located at both an upgradient and downgradient location. The upgradient detector is located on the collection header inside the 222-S Analytical Laboratory where the pipe exits the building. The downgradient location is where the waste enters the 219-S Waste Handling Facility. The leak

detection probes are connected to remote alarm panels located in both the 219-S Waste Handling Facility operating galley (Instrument Panel IP3) and in Room 3B inside the 222-S Analytical Laboratory. A drawing ~~in Appendix 4A~~ showings the wiring schematic for leak detection is provided in the Administrative Record, DOE/RL-91-27, Appendix 4A.

Pipelines have been pressure tested ~~(Appendix 4B-3)~~. In addition, pipelines are supported and restrained from movement in tunnels T-4, 7, and 8. Drains for liquid waste that flow from the other hot cells in Rooms 1A, 1E-1, 1E-2, 1F, and 11A also were upgraded through use of double-walled piping.

During the process of upgrading the piping network, a quantity of highly radioactive pipe was removed. Because of the health risk associated with extended exposure to this pipe, a proposal was made to Ecology to cut the pipe and place the piping in a shielded staging area within tunnel T-8. Ecology approval was received on October 10, 1997 (99-EAP-446). The radioactively contaminated pipe will be removed during closure of the 222-S Laboratory Complex.

4.3.1.1.2 Description of Tanks

Tank 101 is a flat-bottomed steel tank, 2.74 meters in diameter by 2.74 meters tall. The tank is constructed of 1.27-centimeter-thick niobium-stabilized type 347 stainless steel. The tank was fabricated in 1943 and was not used until installation at the 219-S Waste Handling Facility in 1951. Tank 101 has an approximate volume of 15,000 liters with a normal working volume limit for waste of approximately 13,630 liters. The working volume limits are established to prevent overflows and could change as required by 222-S Laboratory Complex management. The tank is equipped with a liquid-level monitoring system. Tank 101 is contained in cell A of the vault.

Tank 102 is the same design as tank 101. Tank 102 is contained in cell A of the vault with tank 101. The normal working volume of tank 102 is approximately 15,000 liters and could change as required by 222-S Laboratory Complex management. The tank also is equipped with a liquid-level monitoring system, an agitator, and a sampling system.

Tank 104 was fabricated in 1995 and is 1.83 meters in diameter by 3.05 meters tall. The tank is constructed from 304L stainless steel, with a total volume of approximately 7,200 liters and a working volume of approximately 6,060 liters and could change as required by 222-S Laboratory Complex management. This tank is equipped with a liquid-level measuring system. Tank 104 is located in cell B of the vault.

4.3.1.1.3 Description of Sampling System

A portion of the tank system not requiring a double-containment pipe is the tank 102 sampling system. The sampling system does not meet the definition of ancillary equipment (WAC 173-303-040). The sampling system is used to collect samples from tank 102 through the use of a vacuum. The balance of the waste is returned to the tank once the sample has been collected in the sample box located in the 219-S Waste Handling Facility gallery room. Any leakage inside the sampling gallery can be seen.

4.3.1.2 Integrity Assessments [D-2a(2)]

An initial design integrity assessment of the 219-S Waste Handling Facility was performed in 1990 (WHC-SD-CP-ER-030). This assessment included a structural analysis on tanks 101 and 102, which demonstrated that under normal operating conditions the required minimum wall thickness is 0.075 centimeter.

With the completion of tank system upgrades at the 219-S Waste Handling Facility, a subsequent series of

assessments were completed.

The current 219-S Waste Handling Facility assessment reports address existing tank system components [WAC 173-303-640(2)] and new tank system components [WAC 173-303-640(3)] except for the development of a schedule for future evaluations. The report for each design and/or installation assessment is provided in the Administrative Record, DOE/RL-91-27, Appendices 4B-1 through 4B-4. These assessments refer the 219-S Waste Handling Facility as (1) the collection system, (2) the transfer system from the 222-S to 219-S Waste Handling Facility, and (3) the storage and treatment system, or similar terms. The design assessment reports attest to the integrity of the tank system as being designed adequately and having sufficient structural strength and compatibility with the waste to be stored and treated to ensure that the tank system will not collapse, rupture, or fail. The installation assessment reports ensure that proper handling procedures were adhered to during installation. The assessment reports are as follows:

- Administrative Record, DOE/RL-91-27, Appendix 4B-1: Existing components, tanks 101 and 102
- Administrative Record, DOE/RL-91-27, Appendix 4B-2: New components, tank 104 and vault ancillary equipment (Project W-178)
- Administrative Record, DOE/RL-91-27, Appendix 4B-3: New components, 222-S Analytical Laboratory to 219-S Waste Handling Facility ancillary equipment (Project W-087 Phase II)
- Note: Project W-087 Phase I upgraded ancillary equipment included in the DST System TSD unit boundary and is referred to as the transfer system from the 219-S Waste Handling Facility to the 244-S Receiving Tank.
- Administrative Record, DOE/RL-91-27, Appendix 4B-4: New components, 222-S Analytical Laboratory to 219-S Waste Handling Facility ancillary equipment (Project W-041H).

The development of a schedule for future evaluations, as required by WAC 173-303-640(2)(e) and WAC 173-303-640(3)(b), is addressed in the following two sections.

4.3.1.3 Additional Requirements for Existing Tanks [D-2a(3)]

~~As discussed in Appendix 4B-1, b~~Both visual and ultrasonic tests were performed on tanks 101 and 102. The wall thickness was measured to be nominally 1.27 centimeters, indicating that the tanks have not experienced any measurable deterioration over 40 years of operation. Based on this information, no reduction in tank wall thickness is anticipated over the planned 20 years of service life of the tank system. As a result, the components of the 219-S Waste Handling Facility will be re-evaluated in 20 years (2019).

4.3.1.4 Additional Requirements for New Tanks [D-2a(4)]

The installation and inspection of tank 104 was certified by an independent, qualified, registered professional engineer. A copy of the document that provides this assurance, design, design acceptance, and installation is provided in the Administrative Record, DOE/RL-91-27, Appendix 4B-2. Based on this information, no reduction in tank wall thickness is anticipated over the planned 20 years of service life of the tank system. As a result, the components of the 219-S Waste Handling Facility will be re-evaluated in 20 years (2019).

4.3.2 Secondary Containment Requirements and Release Detection for Tank Systems [D-2b]

This section presents a discussion on containment system design and capacity, control of run-on, and the leak detection system. The secondary containment system consists of structures, equipment, and operating methods designed to prevent the release of mixed waste to the environment. As discussed in this section, the mixed waste treatment and storage tanks are located in a belowgrade concrete vault. In addition, leak detection and overfill equipment are fitted in the tanks and vault.

4.3.2.1 Requirements for All Tank Systems [D-2b(1)]

Tanks 101, 102, 103, and 104 are contained in a belowgrade concrete vault. The vault is divided into two cells, A and B. Tanks 101 and 102 are contained in cell A, and tanks 103 and 104 are contained in cell B. Cell B is divided into two chambers: one chamber containing tank 103 and the other chamber containing tank 104. Tank 103 has been pumped, rinsed, and isolated and is not included as part of the operational aspects of this permit application. Tank 103 will be closed as part of closure of the 219-S Waste Handling Facility (Chapter 11.0).

The concrete vault was constructed in 1951. The vault floor varies from 0.4 to 0.7 meter in thickness. The vault wall varies from 0.5 to 1.1 meters thick. Interior surfaces of the vault originally were covered with a vinyl copolymer coating compatible with the waste in the tanks. A stainless steel liner was installed in cell A and the chamber in cell B containing tank 104.

In cell A, the nominal size of the liner is 3.61 meters by 6.34 meters by 1.625 meters (averaged). The liner is fabricated from stainless steel with walls 0.95 centimeter thick and the floor 1.27 centimeters thick. An average height is used as the cell is sloped approximately 20 centimeters from back to front. A cubical shaped sump (sump 7) is located in the northwest corner of cell A. Grout has been placed between the liner and the existing concrete vault to form a stable foundation for the tanks. ~~Appendix 4A contains the plan and elevation views of cell A as currently configured.~~

In cell B, the nominal size of the liner is 2.13 meters by 2.13 meters by 2.13 meters in height. The liner is fabricated from stainless steel with side wall and bottom thickness the same as the liner in cell A. The liner is sloped 4 centimeters from back to front. Sump 9 is located in the northwest corner of cell B. As discussed with cell A, grout has been installed between the liner and the existing concrete vault. ~~Appendix 4A contains the features of the containment liner installed in cell B.~~

Run-on of precipitation into the vault is controlled. Precipitation that might enter the vault is collected in either sump 9 in cell B or sump 7 in cell A. When the liquid level in the sump reaches the set point, an alarm sounds and supervision immediately is notified of the situation. Any moisture collected in the sumps is pumped to the other tanks according to specified operating methods.

In addition to the secondary containment system, a process control system is in place to detect leaks from the tank system. All tanks, the hot tunnel sumps, and the 219-S Waste Handling Facility sumps have level probes, are lighted, and have audible alarms to indicate when the liquid level limit is exceeded. An alarm sounds when the liquid level set point in a tank is exceeded or when enough liquid accumulates in a sump to exceed the liquid level set point. Operational test records are maintained in the 222-S Laboratory Complex operating record.

Alarms for the tanks and the 219-S Waste Handling Facility sumps are located in Room 3-B of the 222-S Analytical Laboratory and in the 219-S Waste Handling Facility operating gallery. The 222-S Analytical Laboratory is operated to ensure any alarm will be observed and responded to within 24 hours. The leak detection system and associated pumps allow for detection and removal of any

accumulated waste within 24 hours. In the event detection and removal cannot be accomplished within 24 hours, a demonstration according to WAC 173-303-640(4)(c) will be made to Ecology as appropriate. The leak detection activation level is consistent with the residual sump volume discussions and agreement reached on December 18, 1997 (meeting minutes "222-S Laboratory Secondary Containment Upgrades - Project W-087/W-178 Status and Issue Clarification", December 18, 1997). A copy of these minutes is retained in the unit operating record.

4.3.2.2 Secondary Containment Volume

The volume of secondary containment provided by cell B is calculated to be approximately 9,850 liters. The total volume of tank 104 is calculated to be approximately 7,200 liters. Similarly, the volume of cell A is calculated to be approximately 37,000 liters. The combined total volume of tanks 101 and 102 is approximately 30,000 liters. Leak detection instrumentation has been placed in both cell A and cell B. The leak detection is designed to detect any liquid that collects in the sumps. Pumps have been installed in both cells to remove liquid that accumulates in the sumps. ~~The locations of the leak detection and pumps installed in cells A and B are shown in Appendix 4A.~~

4.3.3 Variances from Secondary Containment Requirements [D-2c]

Variance from the need for secondary containment has been requested for the following two conditions:

1. A request for a waiver from secondary containment on a 2-1/2 inch-long vertical section of pipeline that penetrates the floor of Room 1-J was granted by Ecology (99-EAP-446). The section of pipe connects the inductively coupled plasma emissions spectrometer located in Room 1-J to the pipeline in tunnel T-4. This pipeline is equipped with secondary containment downstream of the section of pipe that penetrates the floor. Upstream from the floor, the pipeline can be inspected. The cost associated with relocating the equipment and chipping out the concrete for the anticipated small flow was not considered cost effective. The waiver is subject to change based on future use of the spectrometer and/or technological advancement. A description of the installation is provided in the Administrative Record, DOE/RL-91-27, Appendix 4B-3.

2. A drain header exists in tunnel T-8 that consists of a valve and a small section of pipe (approximately 2 inches in length). The drain header allows for cleanout of the line in the event that solid material settles out in the line. Although the header does fit the functional definition of ancillary equipment, agreement has been reached that secondary containment is not required because the drain header does not operate under pressure (refer to meeting minutes, 222-S Laboratory Secondary Containment Upgrades-Projects W-087/W-178, "Status and Issue Clarification", 12/18/1997 (99-EAP-446)]. The drain header is sloped upgradient of the direction of flow and therefore under normal operating conditions has limited contact with the liquid waste.

4.3.4 Tank Management Practices [D-2d]

The liquid mixed waste treated and stored at the 219-S Waste Handling Facility is corrosive, contains metals, and contains very low concentrations of some organic compounds. No separable-phase organic liquids are allowed in the liquid waste sent to the 219-S Waste Handling Facility. Mixed waste normally is routed to specific tanks based on piping and jumper configurations, unless a specific tank cannot receive normal transfers of mixed waste. Before the waste can be transferred to the DST System, the pH must be greater than or equal to 12.0, and the nitrite concentration must be at least 600 parts per million. These pH and nitrite conditions slow the rate of corrosion in the DST System. A discussion of the annual volume and waste characteristics treated and stored in the 219-S Waste Handling Facility is provided in Chapters 1.0 and 3.0 respectively.

Methods are used to limit the types of solutions routed to the 219-S Waste Handling Facility. Operating specifications are in place to maintain concentrations of chemical species within established limits for waste routed to the DST System. Waste transfer methods are designed to prevent spills and overflows, prevent misrouting of waste, monitor the waste, ensure the safety of operating personnel, and provide records of activities at the 219-S Waste Handling Facility. Controls to prevent overfilling of tanks include instrumentation within the tanks, and operating guidelines to monitor the amount of waste in the tanks to ensure a sufficiently low operating level to maintain a margin of safety. High-level alarms annunciate in the 219-S Waste Handling Facility operating gallery and in Room 3-B of the 222-S Analytical Laboratory.

During treatment, waste batches are transferred from tank 101 and/or tank 104 to tank 102. The contents of tank 101 can be blended with the contents of tank 104 in tank 102. The waste is segregated to maintain control over the radiological levels in tank 102. Treatment with sodium hydroxide and sodium nitrite occurs in tank 102 before the transfer of the tank 102 contents to the DST System. In the event 219-S Waste Handling Facility mixed waste is not transferred to the DST System, these treatment steps might not be required to meet waste acceptance criteria for an onsite TSD unit or offsite TSD facility. The treated waste is sampled and analyzed for receiving unit waste acceptance parameters identified in the waste analysis plan (Chapter 3.0~~Appendix 3A~~).

4.3.4.1 Tank 101

Waste typically routed to tank 101 is generated in the 11A hot cells. The contents of tank 101 typically are transferred to tank 102 for treatment. Tank 101 is equipped with an agitator.

4.3.4.2 Tank 104

Tank 104 receives liquid mixed waste generated during 222-S Analytical Laboratory operations. Figure 4-4 shows the various sources of waste transferred to tank 104. The contents of tank 104 typically are transferred to tank 102 for treatment. Tank 104 typically is equipped with an agitator.

4.3.4.3 Tank 102

Tank 102 typically is the primary treatment tank and typically receives batches of waste from tank 101 and/or tank 104. The volume of waste treated in tank 102 and the frequency of treatment vary depending on the laboratory workload. Treatment occurs on a batch basis when sufficient volume has accumulated in tank 101 and/or tank 104. When tank 102 contents are transferred to the DST System, the laboratory determines the amount of sodium hydroxide needed to achieve a pH greater than or equal to 12.0 and adds the sodium hydroxide, a sample is taken to ensure that the solution is the appropriate pH. The correct amount of sodium nitrite is added. Samples typically are collected in the sample gallery from a lead (shielded) sample box, which contains a sample riser and a 4-milliliter-sample-cup air jet. Sampling is performed with a portable sampler.

The tank agitator operates during pH adjustment to prevent spot heating or boiling caused by the addition of large quantities of sodium hydroxide to an acid solution. A tank 102 transfer record is completed to document the transfer. The information required includes the amount of chemicals added during treatment, transfer time, and the volume of water used for flushing the transfer line. Following treatment, the contents in tank 102 typically are transferred to the DST System by way of underground piping, tank trailer, or other containers.

4.3.4.4 Transfer of Waste by Underground Piping

Liquid waste from tank 102 typically is transferred through underground piping to the DST System (~~Appendix 4A~~). A laboratory waste transfer data sheet is used to initiate the transfer through the underground pipeline. This sheet indicates waste is within the DST System acceptance envelope and records the amount of waste transferred to the DST System. Land disposal restriction information is documented before transfer.

4.3.4.5 Tank Trailer or Other Container Transfer

A tank trailer also is used for the transfer of waste from tank 102 to the DST System, to an onsite TSD unit, or to an offsite TSD facility. A laboratory waste transfer data sheet is used to initiate the transfer of the contents of tank 102 to the tank trailer. This data sheet indicates waste is within the onsite TSD unit or offsite TSD facility acceptance envelope and records the amount of waste received in the tank trailer and the receiving tank volume. Land disposal restriction information is documented before transfer.

The receiving onsite TSD unit or offsite TSD facility waste profile documentation and transfer/shipment requirements will determine the documentation used to transfer/ship the contents of tank 102 to other containers. Land disposal restriction information is documented before transfer.

Transfer of tank 102 contents to a tank trailer or other container requires staging of the tank trailer or other containers adjacent to the 219-S Waste Handling Facility. Although transfer operations are designed to minimize staging time adjacent to the 219-S Waste Handling Facility, the tank trailer or other containers are staged until the transfer to an onsite TSD unit or shipment to an offsite TSD facility is accomplished. Approval to transfer/ship will be obtained from the receiving onsite TSD unit or offsite TSD facility before pumping the tanks.

4.3.4.6 Inspection of Tanks and Surrounding Area

Daily inspection of data gathered from leak detection monitoring equipment constitutes the 219-S Waste Handling Facility tank inspection requirements. The basis for inspecting the data gathered from monitoring equipment results from ALARA considerations. That being, the value to human health and the environment resulting from these inspections is less than the human health risk to the operational staff resulting from radiological exposure to the liquid waste stored in the tanks. Refer to Chapter 6.0 for additional information on inspections.

4.3.5 Labels or Signs [D-2e]

To maintain exposure ALARA, the tanks within the 219-S Waste Handling Facility are not labeled. Warning signs for the 219-S Waste Handling Facility are described in Chapter 6.0.

4.3.6 Management of Ignitable or Reactive Waste in Tank Systems [D-2g]

Mixed waste managed in tanks 101, 102, and 104 of the 219-S Waste Handling Facility does not exhibit the characteristics of ignitability or reactivity. Ignitable and reactive waste can be introduced into the 219-S Waste Handling Facility ancillary equipment provided that (1) the downstream receiving unit can accept the waste and (2) compliance with WAC 173-303-395(1) is demonstrated. Ignitable and reactive waste introduced into the 219-S Waste Handling Facility must have the DEACT (deactivation) treatment standard (deactivation according to 40 CFR 268.42) as a treatment standard option in 40 CFR 268.40. Additional information concerning the DEACT treatment can be found in the waste analysis plan (Chapter 3.0~~Appendix 3A~~).

4.3.7 Management of Incompatible Waste in Tank Systems [D-2h]

Mixed waste managed in the 219-S Waste Handling Facility is compatible with the tank system. Incompatible waste can be introduced into the 219-S Waste Handling Facility provided that the WAC 173-303-395(1)(b) requirement is met. Additional information concerning incompatible waste can be found in the waste analysis plan (Chapter 3.0~~Appendix 3A~~).

4.4 AIR EMISSIONS CONTROL [D-8]

This section addresses the 222-S Laboratory Complex requirements for air emission standards under WAC 173-303-692 (Subpart CC) for certain hazardous waste managed in the 222-S Dangerous and Mixed Waste Storage Area.

The air emission standards of Subpart CC are applicable to containers having a design capacity greater than 0.1 cubic meter. Labpack configurations are not subject to Subpart CC standards because the inner containers are less than 0.1 cubic meter.

For containers of hazardous waste in containers greater than or equal to 0.1 cubic meter and less than 0.46 cubic meter, Subpart CC standards apply when managing hazardous waste with average volatile organic concentrations equal to or exceeding 500 parts per million by weight, based on the hazardous waste composition at the point of origination. Because containers of hazardous waste in the 222-S Dangerous and Mixed Waste Storage Area can be considered 'containers in light material service' and stabilization does not occur in containers, container level 1 requirements are the only applicable requirements. Container Level 1 standards are met at the 222-S Laboratory Complex by managing subject hazardous waste in U.S. Department of Transportation containers [40 CFR 264.1086(f)]. The monitoring requirements for Level 1 containers include a visual inspection when hazardous waste initially is placed in a container at the 222-S Laboratory Complex.

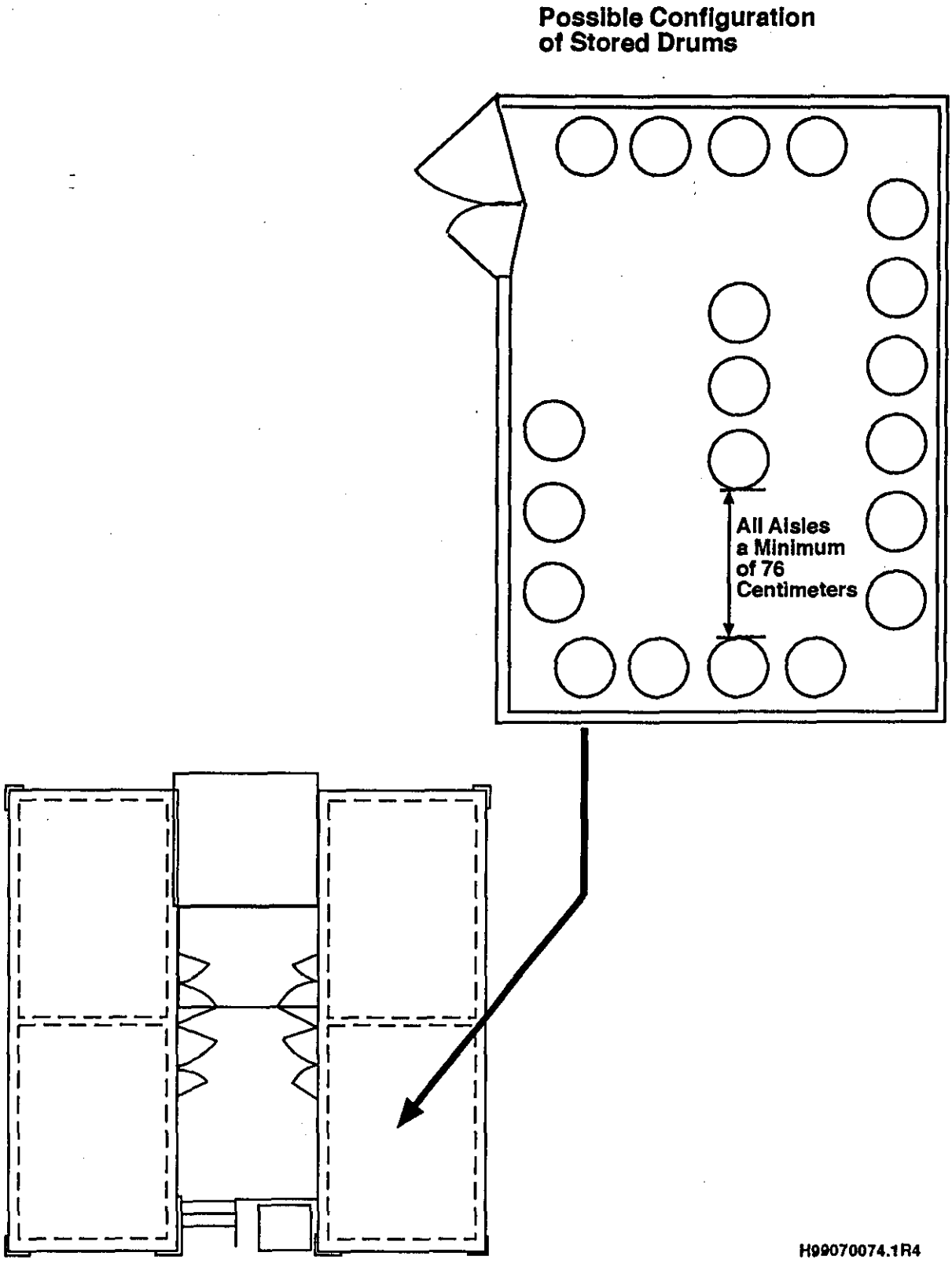

Figure 4-1. General Layout of Storage in 222-S Dangerous and Mixed Waste Storage Area.

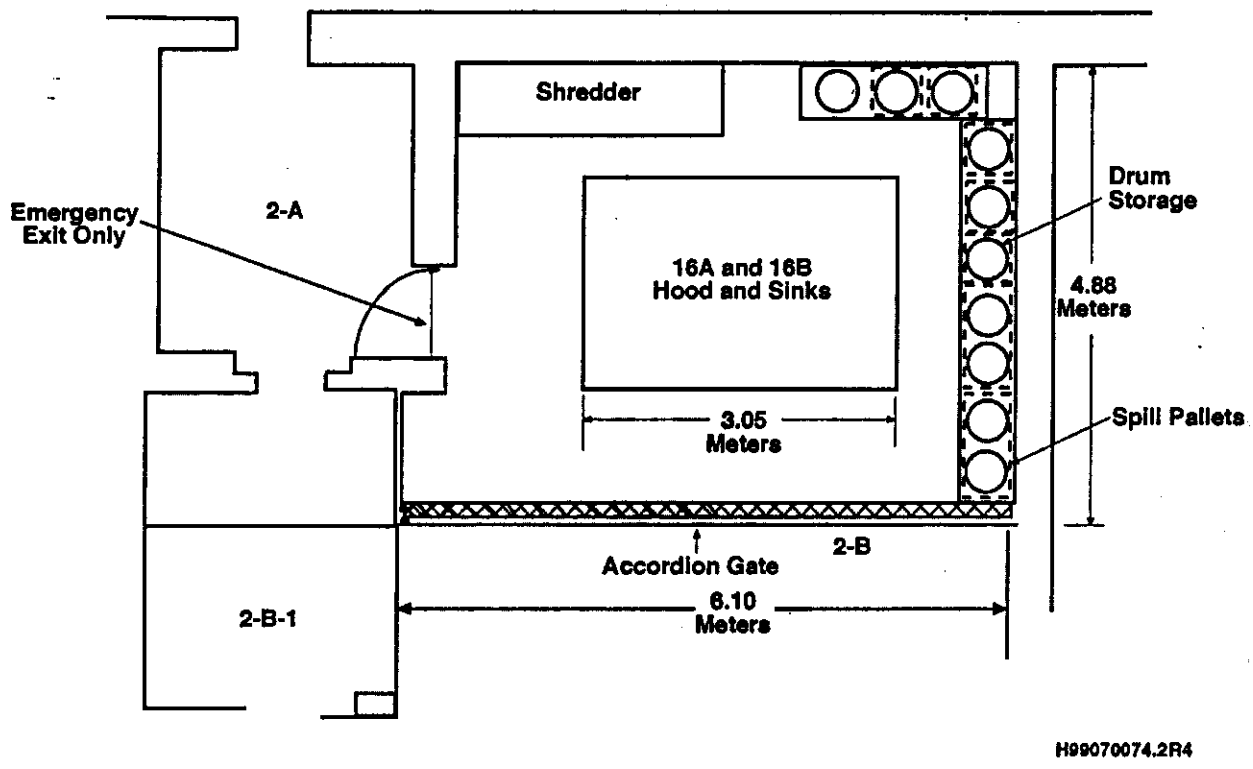

Figure 4-2. General Layout of Room 2-B.

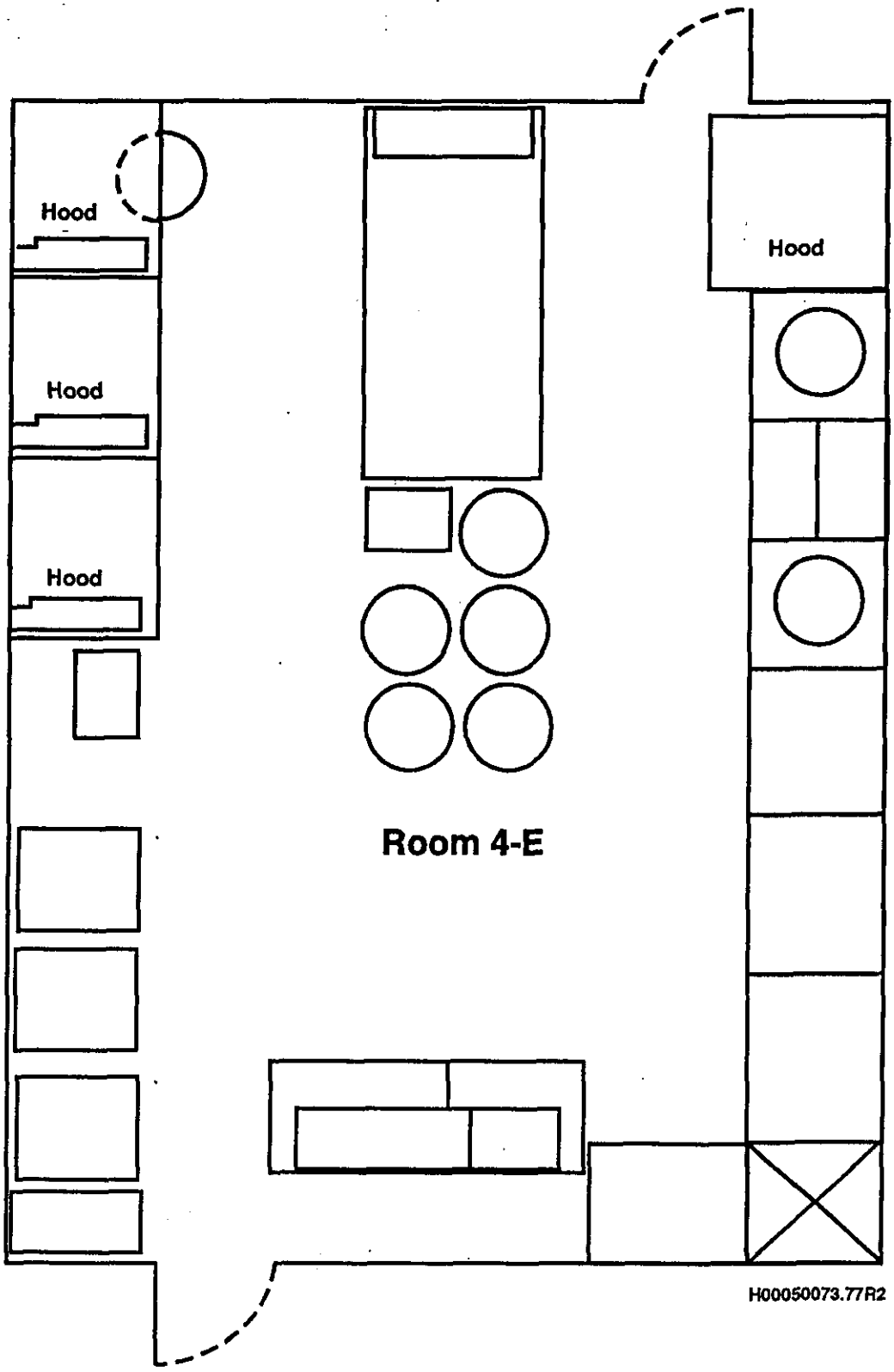

Figure 4-3. General Layout of Room 4-E.

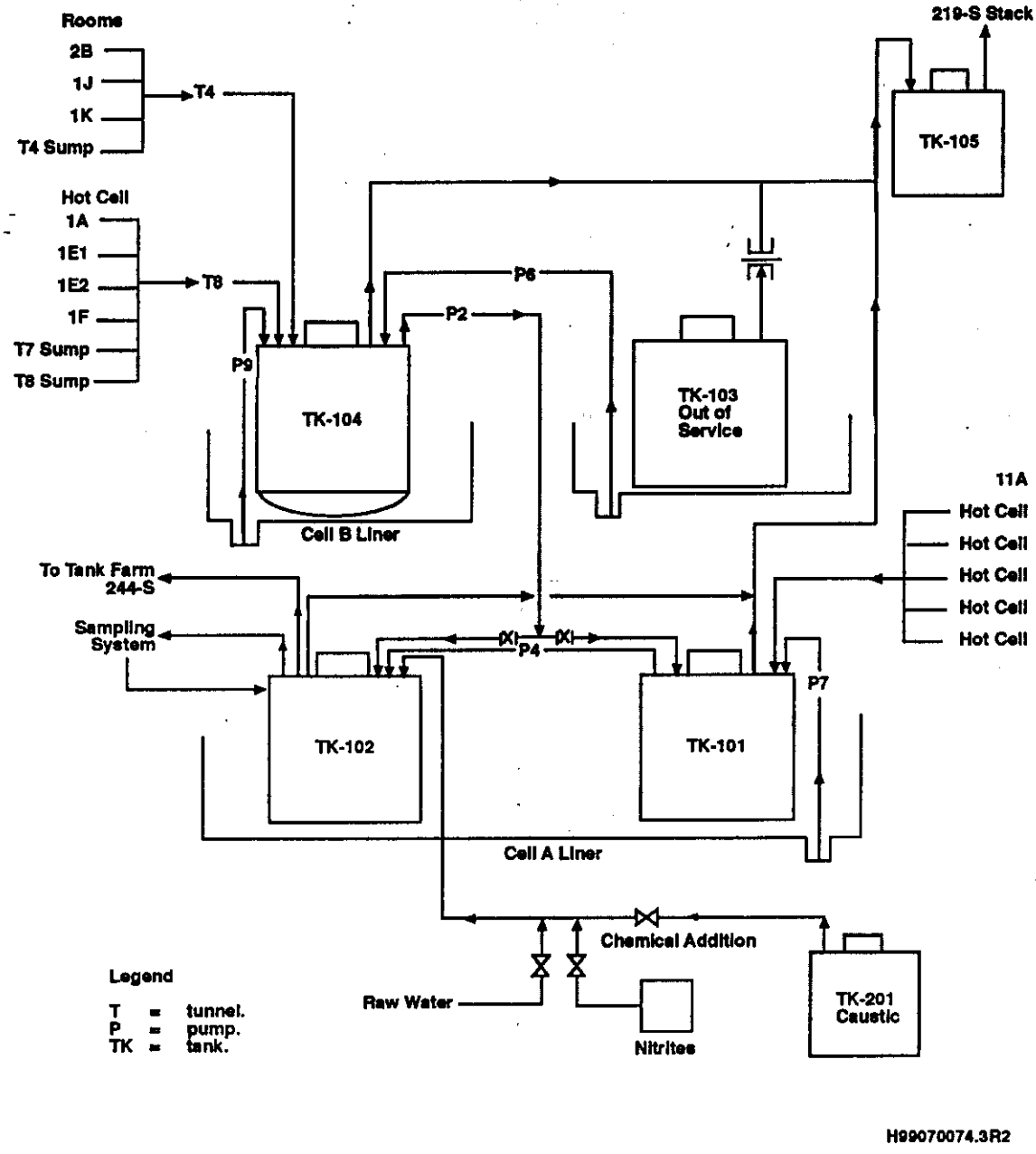

Figure 4-4. Typical Routing for the 219-S Waste Handling Facility and Associated Systems.

Table 4-1. Typical Equipment Used in Containerizing Waste for Storage.

Inner Containers
• Polyethylene bottles with liquid-tight screw-on lids • Glass bottles with liquid-tight screw-on lids • Polyethylene bags • Slip-lid cans • 90-mil polyethylene liners.
Sorbent Materials
• Sorbent pads (for organics): cotton batting woven into mesh, 1-liter capacity each • Sorbent material (for aqueous or organics): polyethylene sorbent material, 1-liter capacity each • Fine clay granular sorbent (for aqueous materials primarily) • Diatomaceous earth (for inorganics, especially acids) • Amorphous silicate for organic or inorganic liquids other than acids) • Fine-grained pillow (for inorganics) • Nontreated clay-based sorbents (for inorganics).
Outer Containers
• DOT UN1A1 steel containers with solid lid, seal ring, locknut, and bolt • DOT UN1A2 steel containers with solid lid, seal ring, locknut, and bolt • 38-liter steel containers with lids and closures • 114-liter steel containers with lids and closures • DOT 208-liter, polyethylene containers • Plywood boxes • Cardboard containers.
Labels
• Bottle identification labels • EPA hazardous waste labels • DOT hazard class diamond-shaped labels.

DOT = U.S. Department of Transportation.
EPA = U.S. Environmental Protection Agency.

CONTENTS

TABLES

6.0 PROCEDURES TO PREVENT HAZARDS [F]

This chapter discusses security, inspection schedules, preparedness and prevention requirements, preventive procedures, structures, equipment, and prevention of reaction of ignitable, reactive, and incompatible waste.

The 222-S Laboratory Complex is designed and operated to minimize exposure of the general public and operating personnel to dangerous and/or mixed waste. Shielding, contamination control, control of toxic or dangerous material, and safety and security procedures are used to keep exposure ALARA.

6.1 SECURITY [F-1]

The following sections describe security measures, equipment, and warning signs used to control entry to the 222-S Laboratory Complex waste management units. A discussion of Hanford Facility security is provided in DOE/RL-91-28.

6.1.1 Security Procedures and Equipment [F-1a]

The following sections describe the 24-hour surveillance system, barrier, and warning signs used to provide security and to control access to the entire 222-S Laboratory Complex.

6.1.1.1 24-Hour Surveillance System

The entire Hanford Facility is a controlled access area (DOE/RL-91-28).

6.1.1.2 Barrier and Means to Control Entry

The 222-S Laboratory Complex is surrounded by the security fencing of the 200 West Area. The security fencing is 2.4-meter-high chain link and is topped with three strands of barbed wire. All entrances to the 222-S Analytical Laboratory are controlled. Access to the waste management units within the 222-S Laboratory Complex also is controlled at all times. The waste management units can be accessed only by authorized personnel. Control is provided by locking the entrances or by ensuring only authorized personnel enter the waste management units.

6.1.1.3 Warning Signs

The 222-S Laboratory Complex waste management units are posted with warning signs. The signs are visible from all angles of approach, are legible from a distance of 7.6 meters, and are printed in English.

The 219-S Waste Handling Facility doors are posted with the following signs:

- "NO SMOKING"
- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"
- Appropriate radiological postings.

The doors of the 222-S DMWSA are posted with the following signs:

- "NO SMOKING"
- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

The gate to the Room 2-B storage area and the doors to Room 4-E are posted with the following sign:

- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT".

"No Smoking" signs are not posted at Room 2-B or Room 4-E because smoking is not allowed in radiological contamination areas of the 222-S Analytical Laboratory.

6.1.2 Waiver [F-1b]

Waiver of the security procedures and equipment requirements for the 222-S Laboratory Complex is not requested. Therefore, the requirements of WAC 173-303-310(1)(a) and (b) are not applicable.

6.2 INSPECTION PLAN [F-2]

This section describes the method and schedule for inspections of the 222-S Laboratory Complex. The purpose of inspections is to help ensure that situations do not exist that might cause or lead to the release of dangerous and/or mixed waste into the environment or pose a threat to human health and the environment. Problems revealed on an inspection are remedied in accordance with WAC 173-303-320(3).

6.2.1 General Inspection Requirements [F-2a and F-2b]

The content and frequency of inspections are described in this section. The inspections are performed by laboratory operations personnel and controlled by laboratory operations management. Inspections are documented on inspection report forms. The schedule and inspection reports are retained in the operating record and contain the following information:

- Date and time of inspection
- Printed name and the hand written signature of the inspector
- Notation of the observations made
- An account of spills or discharges in accordance with WAC 173-303-145
- Date and nature of any repairs or remedial actions taken.

6.2.1.1 Types of Problems

Refer to Tables 6-1, 6-2, and 6-3 for the types of problems looked for during an inspection.

6.2.1.2 Frequency of Inspections

Refer to Tables 6-1, 6-2, and 6-3 for inspection frequencies.

6.2.2 Schedule for Remedial Action for Problems Revealed [F-2c]

The 222-S Laboratory Complex operating organization remedies any problems revealed by the inspection on a schedule that prevents hazards to human health and environment. Where a hazard is imminent or already has occurred, immediate remedial action is taken. Immediate remedial actions are implemented based on ALARA considerations, and availability of supplies, equipment, and personnel. Further corrective actions are discussed in the building emergency plan (Chapter 7.0).

Other conditions that are not a threat to human health and the environment are dispositioned in a timeframe established by the operations supervisor.

6.2.3 Specific Process Inspection Requirements [F-2d]

The following sections detail the specific process inspections to be performed at 222-S DMWSA, Room 2-B, Room 4-E, and the 219-S Waste Handling Facility.

6.2.3.1 Container Inspection [F-2d(1)]

Containers are inspected for evidence of deterioration of structural integrity and to ensure that dangerous waste labels and markings are legible, and waste labels and markings are not obscured, removed, or otherwise unreadable. All containers are stored closed with proper closure. Bulging, creasing, and rusting, which might be evidenced by peeling paint, are recorded to initiate corrective action.

- Containers in storage areas are inspected weekly for leaks, spills, and deterioration caused by corrosion, rust or other factors.
- A log of the inspections is kept indicating the findings. Corrective action datasheets are completed and tracked for any abnormal conditions observed.

6.2.3.2 Tank Inspection [F-2d(2) (2)a-(2)f]

The tanks are located within shielded vaults and are not readily accessible because of ALARA concerns. Daily inspections of data gathered from leak detection monitoring equipment constitutes the 219-S Waste Handling Facility dangerous waste tank system inspection activities. The tank system has extensive process controls and a microprocessor monitoring system linked to local and remote automated alarms. Any leakage in the tank vault or transfer lines drains to floor sumps. Each sump has a liquid level probe that when activated causes an alarm to sound in the 222-S Analytical Laboratory and in the 219-S Waste Handling Facility operating gallery. Liquid collected in sumps is transferred back into the tanks as long as WAC 173-303-640(7) requirements are met. The probability of a tank overflow is very low based on tank system design and operating parameters such as set points for high-level alarms, one-way pneumatic valves, and piping configuration (refer to Chapter 4.0).

6.3 PREPAREDNESS AND PREVENTION REQUIREMENTS [F-3]

The following sections document the preparedness and prevention measures used at the 222-S Laboratory Complex.

6.3.1 Equipment Requirements [F-3a]

The following sections describe the internal and external communications systems and the emergency equipment required.

6.3.1.1 Internal Communication [F-3a(1)]

At the 219-S Waste Handling Facility, 222-S DMWSA, and Rooms 2-B and 4-E storage areas, telephones capable of public address are used for internal communication. The telephone in the 219-S Waste Handling Facility is located in the operating gallery. In the 219-S Waste Handling Facility sample gallery an 'Emergency Assistance Alarm' button has been installed that when activated rings an alarm in Room 3-B to summons assistance. All annunciator alarms are responded to immediately with appropriate action taken.

A telephone is located outside of the 222-S DMWSA on the north wall. A telephone is located within Room 2-B just outside of the entrance to the Room 2-B storage area. A telephone also is located just outside of the entrance to Room 4-E.

The internal communication systems provide immediate emergency instruction to personnel. The onsite internal communication system includes telephones, various alarms systems, and two-way radios. The telephone system, available at various locations, provides internal and external communication. Alarm systems exist at various locations to allow personnel to appropriately respond to various emergencies, including the following emergency situations: building evacuations, take-cover events, and fire and/or explosion (Chapter 7.0~~Appendix 7A~~).

6.3.1.2 External Communication [F-3a(2)]

The 222-S Laboratory Complex is equipped with devices for summoning emergency assistance from the Hanford Fire Department and/or emergency response teams as necessary. External communication is made via fire alarms, a telephone communication system, or two-way radios (hand-held and vehicle-mounted radios). A telephone communication system and two-way radios can be used to access a supervisor, who contacts the Hanford Site emergency network if assistance is needed.

Telephones are located throughout the 222-S Laboratory Complex, including the 219-S Waste Handling Facility, in close proximity to the 222-S DMWSA, and adjacent to Rooms 2-B and 4-E, to provide external communication capabilities. At remote locations, two-way radios can be used to access a supervisor. In addition, the following external communication systems are available for notifying personnel assigned to emergency response organizations:

- Fire alarm pull boxes--connected to a system monitored around the clock by the Hanford Fire Department
- Telephone number 911 (373-3800 for cellular phones)--the contact point for the Hanford Site; on notification, the Hanford Patrol Operations Center notifies and/or dispatches required emergency responders
- Telephone number 373-3800--single point of contact for the emergency duty officer; this number can be dialed from any Hanford Site telephone
- Crash alarm telephone system--consists of selected telephones automatically connected to control stations
- Two-way radio system--consists of hand-held or vehicle radios; the system accesses the Hanford Site emergency network and can summon the Hanford Fire Department, Hanford Patrol, and/or any other assistance requested to handle emergencies.

~~6.3.1.3 Emergency Equipment [F-3a(3)]~~

Emergency equipment is available for use throughout the 222-S Laboratory Complex, i.e., portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment. The Hanford Facility relies primarily on the Hanford Fire Department to control fires. The Hanford Fire Department is capable of providing rapid response (less than 10 minutes) to fires within the 200 West Area. Portable fire extinguishers are provided on motorized equipment and vehicles, and throughout the 222-S Laboratory Complex. The Hanford Fire Department tests and maintains the dry chemical fire protection system as necessary for the 222-S DMWSA. The 219-S Waste Handling Facility relies on water at adequate volume and pressure to supply water hose streams.

Emergency eye washes and safety showers are distributed strategically throughout the 222-S Laboratory Complex for emergency situations involving waste managed in the units. An area is provided for

personnel decontamination in emergency situations. Sufficient respirators are available to cover all material handling areas in case of high concentrations of airborne contamination or loss of ventilation.

6.3.1.4 Water for Fire Control [F-3a(4)]

The primary water supply for fire protection is supplied from the 200 West Area water system. Water is pumped to the 222-S Laboratory Complex through an underground pipeline that ties into existing water mains. All underground installations are in accordance with National Fire Protection Association Code 24 (NFPA latest edition).

Additional water for fire control at the 222-S Laboratory Complex is supplied by Hanford Fire Department trucks for fires requiring high water volume and pressure.

The Hanford Fire Department tests and maintains the primary water systems as necessary.

6.3.2 Aisle Space Requirements [F-3b]

Aisle spacing requirements for the 222-S DMWSA and Rooms 2-B and 4-E are based on WAC 173-303-340(3) and -630(5).

6.4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [F-4]

The following sections describe preventive procedures, structures, and equipment.

6.4.1 Unloading Operations [F-4a]

Transfers to the 219-S Waste Handling Facility are made by way of underground piping, tank trailer, or other containers. Transfers from the 219-S Waste Handling Facility to onsite TSD units or shipments to an offsite TSD facility are made by similar means. Transfers to or from the 219-S Waste Handling Facility are monitored by operations personnel. During unloading/loading operations at the 219-S Waste Handling Facility, procedures, structures, or equipment are used to prevent hazards and contain spills. Unloading/loading operations via underground piping uses the secondary containment provided for the underground piping. Unloading/loading operations via tank trailer use a portable bermed containment area under the tank trailer and plastic wrapped transfer lines. Spill equipment identified in the contingency plan (Chapter 7.0) is available for unloading/loading operations associated with other containers.

For Rooms 2-B and 4-E and the 222-S DMWSA, the following methods are used to minimize the potential for breaching containers during waste unloading.

- Containers are inspected for damage before being unloaded.
- Containers are handled with appropriate equipment during unloading. Organizations generating onsite waste or offsite generators are required to provide rigging and instructions for unloading packages requiring special handling.
- Spill equipment identified in the contingency plan (Chapter 7.0) is available.

6.4.2 Run-Off [F-4b]

Run-off for the 219-S Waste Handling Facility is prevented because the tank system meets the requirements of WAC 173-303-640.

Any liquid waste that might spill during transfer to the tank trailer is prevented from running off by the use of a portable berm that surrounds the tank trailer during transfers. Spills are cleaned up according to applicable methods.

The 222-S DMWSA has completely roofed structures that rest on an elevated platform. The platform raises the 222-S DMWSA about 25.4 centimeters above ground level, minimizing the likelihood of overland run-on reaching the 222-S DMWSA. The roof prevents precipitation from entering the storage structures. The containment basins within each storage structure prevent run-off of any release within the 222-S DMWSA.

Containers holding free liquids within Room 2-B and Room 4-E are stored on spill pallets to prevent spills from reaching other portions of the 222-S Analytical Laboratory.

6.4.3 Water Supplies [F-4c]

Potential contamination of the raw water supply at the 222-S Laboratory Complex is prevented through the use of reduced pressure backflow devices, which ensure that contaminated water cannot flow back into the raw water system. The backflow preventers are installed on all raw water lines.

Operating methods, structures, and equipment are used to prevent contamination of water supplies. The structures and equipment designed to prevent contamination of water supplies are the same structures and equipment used to prevent run-off from dangerous and/or mixed waste handling areas (Section 6.4.2).

6.4.4 Equipment and Power Failure [F-4d]

Loss of electricity results in the loss of power to sump pumps, exhaust pumps, agitators, and automated indicators and alarms at the 219-S Waste Handling Facility. In the event of a loss of electricity, all pH adjustments, neutralizations, and transfer operations are stopped and the remaining waste in the pipelines gravity flows to the tank system. In the 222-S Analytical Laboratory, Room 3-B, the panel alarm annunciators notify the 222-S Laboratory Complex personnel of a power outage at 219-S Waste Handling Facility. The annunciators can be reset only in the 219-S Waste Handling Facility when power is restored. Backup mechanical gauges are available onsite if the existing gauges fail or in the event of a power failure.

Operation of the 222-S DMWSA requires the use of electricity to power the temperature control system and ventilation. A power outage affects the storage of waste only during extreme weather conditions.

Loss of electricity to Room 2-B and Room 4-E is mitigated by the use of a backup diesel generator that powers emergency ventilation systems and by battery operated emergency lighting.

6.4.5 Personnel Protection Equipment [F-4e]

The 222-S Laboratory Complex procedures, structures, and equipment are used to prevent undue exposure of personnel to dangerous waste and hazardous chemicals. Protective clothing and equipment are prescribed for personnel handling chemicals or dangerous waste. Whenever possible, exposures to hazards are controlled by accepted engineering and/or administrative controls. Protective gear is used where effective engineering or administrative controls are not feasible or sufficient.

6.5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE [F-5]

The following sections describe prevention of reaction of ignitable, reactive, and incompatible waste.

6.5.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [F-5a]

At the 222-S DMWSA, waste is managed to prevent the reaction of ignitable or reactive waste in the following ways.

- Waste is packaged in containers in accordance with the overpack container requirements of WAC 173-303-161. Incompatible waste, as defined in WAC 173-303-040, is not placed within the same outer container.
- Storage within the locked 222-S DMWSA prevents exposure of the containerized waste to sources of ignition or reaction such as open flames, smoking, or welding operations. No smoking is permitted at the 222-S DMWSA.

At Room 2-B and Room 4-E, waste is managed to prevent the reaction of ignitable or reactive waste in the following two ways.

- Waste is packaged in containers in accordance with the overpack container requirements of WAC 173-303-161. Incompatible waste, as defined in WAC 173-303-040, is not placed within the same outer container.
- Storage is in accordance with WAC 173-303-395(1) to prevent exposure of the containerized waste to sources of ignition or reaction such as open flames, smoking, or welding operations.

The 219-S Waste Handling Facility is permitted to accept ignitable and reactive waste into the storage/treatment tanks. Ignitable and reactive waste is managed pursuant to WAC 173-303-395(1).

6.5.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste [F-2d(3) and F-5b]

Ignitable or reactive waste and mixing of incompatible waste is managed pursuant to WAC 173-303-395(1). In addition, the requirements of WAC 173-303-630(8 and 9) and -640(9 and 10) are, and will be, met.

Dangerous or mixed waste managed in the 219-S Waste Handling Facility is evaluated according to the waste analysis plan (Chapter 3.0~~Appendix 3A~~). The waste acceptance criteria (Chapter 3.0~~Appendix 3A~~) contains the description of actions necessary to meet requirements of WAC 173-303-395(1)(b) and -806(4)(c)(x).

Table 6-1. 219-S Waste Handling Facility Inspections.

Requirement description (WAC 173-303-)	Inspection frequency	Types of problems
-640(6)(a) High-level alarms	Quarterly	Verify operation of instrumentation
-640(6)(b)(i through iii) Data from leak detection monitoring equipment*	Daily	Observe annunciator panel to determine if lights are on
-640(6)(c) Cathodic protection system	Every 2 months	Operability Impressed Current
-640(4)(f)(i) Aboveground ancillary equipment in Room 1J	Daily	Visual inspection for leaks
-395(1)(d) Ignitable or reactive waste	Annual where ignitable or reactive waste is stored	Stored in compliance with Hanford Site fire protection standards
* Refer to Section 6.2.3.2.		

Table 6-2. 222-S Dangerous and Mixed Waste Storage Area and Rooms 2-B and 4-E Inspections.

Requirement description (WAC 173-303-)	Inspection frequency	Types of problems
-630(6) Containers	Weekly	Leaking containers Deteriorating containers*
-630(6) Containment system	Weekly	Deteriorating containment system
-395(1)(d) Ignitable or reactive waste	Annual where ignitable or reactive waste is stored	Stored in compliance with Hanford Site fire protection standards
* Refer to Section 6.2.3.1.		

Table 6-3. WAC 173-303-320(2) Inspection Schedule.

Requirement description	Inspection frequency	Types of problems
Monitoring equipment: Refer to Table 6-1	Not applicable	Not applicable
Safety and emergency equipment: eyewash/shower station, emergency lighting, fire extinguishers, spill cart/spill cabinet, spill cleanup equipment, first aid kits, and respirators.	Monthly	Equipment is present and is functional.
Security devices: "Danger unauthorized personnel keep out" signs	Weekly	Signs are posted and legible.
Operating and structural equipment: dry chemical fire protection system and primary water systems	Per Hanford Fire Department schedule	Operability
Areas subject to spills	Daily when waste management activities have a potential for a spill to occur	Evidence of spills

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CONTENTS

FIGURE

TABLE

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7.0 CONTINGENCY PLAN [G]

The WAC 173-303 requirements for a contingency plan are satisfied in the following documents: Portions of the *Hanford Emergency Management Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] and this Chapter, ~~portions of the *Building Emergency Plan for the 222-S Laboratory Complex* (Appendix 7A).~~

Table 7-1 identifies which portions of the building emergency plan are written to meet WAC 173-303 contingency plan requirements. In addition to the building emergency plan portions identified in Table 7-1, ~~Section 12.0~~ of the building emergency plan is written to meet WAC 173-303 requirements identifying where copies of the *Hanford Emergency Management Plan* and the building emergency plan are maintained on the Hanford Facility. Therefore, revisions to Chapter 7.0 ~~Section 12.0 and the portions identified in Table 7-1~~ are considered a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3.

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173 303-350(3)

Requirement	Hanford Emergency Management Plan (DOE/RL-94-02): Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan[1] (HNF-IP-0263-222S)	Attachment 50 Chapter 7.0
-350(3)(a) - A description of the actions which facility personnel must take to comply with this section and WAC 173-303-360.	X[2] Section 1.3.4	X[2] Sections 7.1, 7.2 through 7.2.5, and 7.3[3] Sections 4.0, 8.2, 8.3, 8.4, and 11.0	X[2] Sections 7.3.1, 7.3.2, through 7.3.2.5, and 7.3.3[3] Sections 7.3, 7.3.4, 7.3.5, 7.3.6, and 7.5
-350(3)(b) - A description of the actions which shall be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments.	X[2] Section 1.3.4	X[2,4] Section 7.2.5.1	X[2,4] Section7.3.2.5.1
-350(3)(c) - A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4).	X Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1		
-350(3)(d) - A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810 (14)(a)(I)), rather than as part of the permit application.		X[5] Sections 3.1 and 13.0	X[5] Sections 7.2 and 7.7

Requirement	Hanford Emergency Management Plan (DOE/RL-94-02): Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan[1] (HNF-IP-0263-222S)	Attachment 50 Chapter 7.0
-350(3)(e) - A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	X Hanford Fire Department: Appendix C	X Section 9.0	X Section 7.4
-350(3)(f) - An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	X[6] Figure 7-3 and Table 5-1	X[7] Section 1.5	X[7] Section 7.1

An 'X' indicates requirement applies.

[1] Portions of the *Hanford Emergency Management Plan* not enforceable through Appendix A of that document are not made enforceable by reference in the building emergency plan.

[2] The *Hanford Emergency Management Plan* contains descriptions of actions relating to the Hanford Site Emergency Preparedness System. No additional description of actions are required at the site level. If other credible scenarios exist or if emergency procedures at the unit are different, the description of actions contained in the building emergency plan will be used during an event by a building emergency director.

[3] Sections 7.1, 7.2 through 7.2.5, and 7.3 of the building emergency plan are those sections subject to the Class 2 "Changes in emergency procedures (i.e., spill or release response procedures)" described in WAC 173-303-830, Appendix I Section B.6.a.

[4] This requirement only applies to TSD units that receive shipment of dangerous or mixed waste defined as offsite shipments in accordance with WAC 173-303.

[5] Emergency Coordinator names and home telephone numbers are maintained separate from any contingency plan document, on file in accordance with Hanford Facility RCRA Permit (DW Portion) General Condition II.A.4. and is updated, at a minimum, monthly.

[6] The Hanford Facility (sitewide) signals are provided in this document. No unit/building signal information is required unless unique devices are used at the unit/building.

[7] An evacuation route for the TSD unit must be provided. Evacuation routes for occupied buildings surrounding the TSD unit are provided through information boards posted within buildings.

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~~APPLICABLE SECTIONS OF APPENDIX 7A OF THE PERMIT APPLICATION~~

7.1 ~~1.5~~ BUILDING EVACUATION ROUTING (BUILDING LAYOUT)

Figure 2 provides identification of the primary and secondary staging areas and a general layout of the 222-S Laboratory Complex. Alternate evacuation routes will be used on a case-by-case basis based on meteorological conditions at the time of the event.

7.2 ~~3.1~~ BUILDING EMERGENCY DIRECTOR

Emergency response will be directed by the BED until the Incident Commander (IC) arrives. The incident command system and staff, with supporting on-call personnel, fulfill the responsibilities of the Emergency Coordinator as discussed in WAC 173-303-360.

During events, 222-S Laboratory Complex personnel perform response duties under the direction of the BED. The Incident Command Post (ICP) is managed by either the senior Hanford Fire Department (HFD) member present or senior Hanford Patrol member present on the scene (security events only). These individuals are designated as the IC and as such have the authority to request and obtain any resources necessary for protecting people and the environment. The BED becomes a member of the ICP and functions under the direction of the IC. In this role, the BED continues to manage and direct 222-S Laboratory Complex operations.

A listing of the BEDs by title, work location, and work telephone numbers is contained in Section 13.0 of this plan. A BED is on the premises or is available through an 'on call' list 24 hours a day. Names and home telephone numbers of the BEDs are available at the Patrol Operations Center (POC) in accordance with Hanford Facility RCRA Permit, Dangerous Waste Portion, General Condition II.A.4.

7.3 ~~4.0~~ IMPLEMENTATION OF THE PLAN

The BED ensures that trained personnel identify the character, source, amount, and areal extent of the release, fire, or explosion to the extent possible. Identification of waste can be made by activities that can include, but are not limited to, visual inspection of involved containers, sampling activities in the field, reference to inventory records, or by consulting with facility personnel. Samples of materials involved in an emergency might be taken by qualified personnel and analyzed as appropriate. These activities must be performed with a sense of immediacy and shall include available information.

The BED shall use the following guidelines to determine if an event has met the requirements of WAC 173-303-360(2)(d):

1. The event involved an unplanned spill, release, fire, or explosion,

AND

2.a The unplanned spill or release involved a dangerous waste, or the material involved became a dangerous waste as a result of the event (e.g., product that is not recoverable.), or

2.b The unplanned fire or explosion occurred at the 222-S Laboratory Complex or transportation activity subject to RCRA contingency planning requirements,

AND

3. Time-urgent response from an emergency services organization was required to mitigate the event or a threat to human health or the environment exists.

As soon as possible, after stabilizing event conditions, the BED shall determine, in consultation with the FH site contractor environmental single point-of-contact, if notification to Ecology is needed to meet WAC-173-303-360(2)(d) reporting requirements. If all of the conditions under 1, 2, and 3 are met, notifications are to be made to Ecology. Additional information is found in DOE/RL-94-02, Section 4.2. If review of all available information does not yield a definitive assessment of the danger posed by the incident, a worst-case condition will be presumed and appropriate protective actions and notifications will be initiated. The BED is responsible for initiating any protective actions based on their best judgment of the incident.

The BED must assess each incident to determine the response necessary to protect personnel, the facility, and the environment. If assistance from Hanford Patrol, Hanford Fire Department, or ambulance units is required, the Hanford Emergency Response Number 911 must be used to contact the POC and request the desired assistance. To request other resources or assistance from outside the facility, the POC business number is used (373-3800).

7.3.1 ~~7.1~~ PROTECTIVE ACTIONS RESPONSES

Protective action responses are discussed in the following sections. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events.

7.3.1.1 ~~7.1.1~~ Evacuation

If an evacuation is ordered or the evacuation siren sounds (STEADY SIREN), personnel shall proceed to the designated or alternate staging areas. Figure 2 shows the staging areas.

Area	Location
Designated staging area	222-S Laboratory Complex - east side and immediately adjacent to 2704-S Building
Alternate staging area	East side and immediately adjacent to 222-SA

Should the need arise to completely evacuate the 222-S Laboratory Complex, personnel shall evacuate, at the direction of the BED, to the location across the road from the Hanford 200 Area Fire Station on Route 3.

The BED directs the evacuation; however, to ensure that evacuations are conducted promptly and safely, all personnel shall be familiar with the correct evacuation procedure. The order to evacuate normally is passed via the site Crash Alarm Telephone System.

Area evacuations are either rapid or controlled, as pointed out in the following steps. When possible, the following steps shall be conducted concurrently:

- Halt any operations or work and place the complex in a safe condition
- Use whatever means available (siren, public address system, bullhorns, runners, etc.) to pass the evacuation information to personnel
- Evacuate personnel to the staging area; group personnel as follows: potentially contaminated, protective clothing, keys immediately available for vehicles, and those needing rides
- Conduct personnel accountability

- Inform IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) once the IC arrives at the ICP
- Relay pertinent evacuation information (routes, destination, etc.) to drivers
- Dispatch vehicles as soon as the vehicles are loaded
- Report status to the RL-EOC, request additional transportation, if required, and report if any personnel remain who are performing late shutdown duties.

7.3.1.2 ~~7.1.2~~ Take Cover

When a take cover siren sounds (WAVERING SIREN), personnel shall take cover in the nearest building. Normally, the order to take cover is given via the Crash Alarm Telephone System or by the area emergency sirens. A message followed by the Take Cover siren will be transmitted over the area emergency sirens. The following actions must be taken or considered:

- Shut doors and windows and wait for further instructions
- Use whatever means available (PA system, bullhorns, runners, etc.) to pass the take cover direction to personnel
- Secure unfiltered ventilation systems as appropriate
- Follow normal exit procedures from radiological areas
- Lock up classified documents and prepare for a possible evacuation
- Report your location to the Personnel Accountability Aid or the BED
- Personnel Accountability Aides will provide accountability status to the Staging Area Manager for facility personnel during an event
- Remain in a take cover mode until notified of all clear from the BED.

7.3.2 ~~7.2~~ RESPONSE TO FACILITY OPERATIONS EMERGENCIES

Depending on the severity of the following events, the BED reviews the sitewide procedures and 222-S Laboratory Complex emergency response procedure(s) and, as required, categorizes and classifies the event. If necessary, the BED initiates area protective actions and Hanford Site Emergency Response Organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events. Attachment A provides a list of procedures.

7.3.2.1 ~~7.2.1~~ Loss of Utilities

A case-by-case evaluation is required for each event to determine loss of utility impacts. When a BED determines a loss of utility impact, actions are taken to ensure dangerous and/or mixed waste is being properly managed, to the extent possible given event circumstances. As necessary, the BED will stop operations and take appropriate actions until the utility is restored.

7.3.2.2 ~~7.2.2~~ Major Process Disruption/Loss of Plant Control

A major process disruption could involve a spill of waste from laboratory operations, waste management activities, and/or waste stored in the tanks (tanks 101, 102, and 104). A spill response plan is provided in Section 7.2.5.

7.3.2.3 ~~7.2.3~~ Pressure Release

On discovery of an existing or potential pressure release, ensure the following response:

- Notify personnel to leave the area of the hazard
- Inform the BED
- If appropriate, shut off the affected system
- Inform appropriate maintenance personnel and request repair.

7.3.2.4 ~~7.2.4~~ Fire and/or Explosion

In the event of a fire, the discoverer activates a fire alarm, calls 911 (373-3800 if using a cellular phone) or verifies that 911 has been called. Automatic initiation of a fire alarm (through the smoke detectors and sprinkler systems) also is possible.

- Unless otherwise instructed, personnel shall evacuate the area/building by the nearest safe exit and proceed to the designated staging area for accountability.

- On actuation of the fire alarm, ONLY if time permits, personnel should shut down equipment, secure waste, and lock up classified documents (or carry the documents with them). The alarm automatically signals the Hanford Fire Department.

- The BED proceeds directly to the ICP, obtains all necessary information pertaining to the incident, and sends a representative to meet the Hanford Fire Department.

- The BED provides a formal turnover to the IC when the IC arrives at the ICP.

- The BED informs the Hanford Site Emergency Response Organization as to the extent of the emergency (including estimates of dangerous waste, mixed waste, or radioactive material quantities released to the environment).

- If operations are stopped in response to the fire, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.

- Hanford Fire Department firefighters extinguish the fire as necessary.

NOTE: Following a fire and/or explosion, WAC 173-303-640(7) will be addressed for the 219-S Waste Handling Facility regarding fitness for use.

7.3.2.5 ~~7.2.5~~ Hazardous Material, Dangerous and/or Mixed Waste Spill

Spills can result from many sources, including process leaks, container spills or leaks, damaged packages or shipments, or personnel error. Spills of mixed waste are complicated by the need to deal with the extra hazard induced by the presence of radioactive materials.

- The discoverer notifies BED and initiates SWIMS response:
  - Stops work

- Warns others in the vicinity
- Isolates the area
- Minimizes the spill if possible
- Requests the BED Secure unfiltered ventilation.

- The BED determines if emergency conditions exist requiring response from the Hanford Fire Department based on classification of the spill and injured personnel, and evaluates need to perform additional protective actions.

- If the Hanford Fire Department resources are not needed, the spill is mitigated with resources identified in Section 9.0 of this plan and proper notifications are made.

- If the Hanford Fire Department resources are needed, the BED calls 911 (373-3800 if using a cellular phone).

- The BED sends a representative to meet the Hanford Fire Department.

- The BED provides a formal turnover to the IC when the IC arrives at the ICP.

- The BED informs the Hanford Site Emergency Response Organization as to the extent of the emergency (including estimates of dangerous waste, mixed waste, or radioactive material quantities released to the environment).

- If operations are stopped in response to the spill, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.

- Hanford Fire Department stabilizes the spill.

NOTE: For response to leaks or spills and disposition of leaking or unfit-for-use actions relating to the 219-S Waste Handling Facility, refer to WAC 173-303-640(7).

7.3.2.5.1 ~~7.2.5.1~~ Damaged or Unacceptable Shipments

In accordance with WAC 173-303-350(3)(b), when an offsite shipment of dangerous and/or mixed waste arrives at the 222-S Laboratory Complex and the shipment is unacceptable for receipt, the damaged shipment should not be moved.

If a damaged shipment or transfer results in a spill or otherwise presents a hazard, the following action is performed in addition to the actions identified in Section 7.2.5.

- Notify the organization generating the waste of the damaged shipment or transfer, and request any information necessary to assist in responding to the spill or hazard that is presented.

7.3.3 ~~7.3~~ PREVENTION OF RECURRENCE OR SPREAD OF FIRES, EXPLOSIONS, OR RELEASES

The BED, as part of the incident command system, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. The BED will take measures, where applicable, to stop processes and operations, collect and contain released waste, and remove or isolate containers. The BED shall also monitor for leaks, pressure buildups, gas generation, or ruptures in valves, pipes, or other equipment whenever this is appropriate.

7.3.4 ~~8.2~~ INCIDENT RECOVERY AND RESTART OF OPERATIONS

A recovery plan is developed when necessary in accordance with DOE/RL-94-02 Section 9.2. A recovery plan is needed following an event when further risk could be introduced to personnel, the 222-S Laboratory Complex, or the environment through recovery action, and/or to maximize the preservation of evidence.

If this plan was implemented according to Section 4.0 of this plan, the Washington State Department of Ecology must be notified before operations can resume. DOE/RL-94-02, Section 5.1, discusses different reports to outside agencies. This notification is in addition to those required reports and must include the following statements.

- There are no incompatibility issues with the waste and released materials from the incident.
- All the equipment has been cleaned, is fit for its intended use, and placed back into service.

The notification required by WAC 173-303-360(2)(j) can be made via telephone conference. Additional information that Ecology requests regarding these restart conditions will be included in the required 15-day report identified in Section 11.0 of this plan.

For emergencies not involving activation of the Hanford-EOC, the BED ensures that conditions are restored to normal before operations are resumed. If the Hanford Site Emergency Response Organization was activated and the emergency phase is complete, a special recovery organization could be appointed at the discretion of RL to restore conditions to normal. This process is detailed in the RL and contractor emergency procedures. The makeup of this organization depends on the extent of the damage and the effects. The onsite recovery organization will be appointed by the appropriate contractor's management.

7.3.5 ~~8.3~~ INCOMPATIBLE WASTE

After an event, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Cleanup actions are taken by 222-S Laboratory Complex personnel or other assigned personnel. DOE/RL-94-02, Section 9.2.3, describes actions to be taken.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility is performed before storage as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in approved storage areas appropriate for their compatibility class.

If incompatibility of waste was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected. Examples include modification of an incompatibility chart or increased scrutiny of waste from a generating unit when incorrectly designated waste caused or contributed to an incident.

7.3.6 ~~8.4~~ POST EMERGENCY EQUIPMENT MAINTENANCE AND DECONTAMINATION

All equipment used during an incident is decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumables and disposed materials are restocked. Fire extinguishers are replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of spill kits and spill control equipment are replenished and protective clothing is cleaned or disposed of and restocked, etc.

7.4 ~~9.0~~ EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-94-02, Appendix C. Emergency resources and equipment for the 222-S Laboratory Complex are presented in this section.

7.4.1 ~~9.1~~ FIXED EMERGENCY EQUIPMENT

Fixed Emergency Equipment		
Type	**Location**	**Capability**
(Wet pipe) sprinkler	Throughout entire 222-S Analytical Laboratory (except tunnels and counting room)	Assist in the control of a Class A fire.
Halon system	Counting Room, 222-S Laboratory Complex Figure 3	Assist in the control of a Class A fire, with lesser impact to personnel and equipment.
Process sewer diverter system	207-SL Basin	Diverts radiological waste not meeting 200 Area Treated Effluent Disposal Facility release criteria to retention basin waste holding tanks.
Eyewash/shower stations	Eyewash and shower stations are located throughout the 222-S Laboratory Complex.	Assist in flushing unwanted chemical/material from an employee's body and clothing.
Public address system	Throughout entire 222-S Laboratory Complex	Communication with personnel within the 222-S Laboratory Complex.
Emergency lighting	Selected points in hallways, stairs, and rooms	Provide low-level egress lighting for buildings during loss of electricity.
Other	Portable vacuum in 222-S Laboratory Complex	For use in water spill situations as necessary.

7.4.2 ~~9.2~~ PORTABLE EMERGENCY EQUIPMENT

Portable Emergency Equipment		
Type	**Location**	**Capability**
Fire extinguisher	Figures 3, 4, 5, and 6	Assist in the control of a fire
First aid kits	Figure 4	Assist in treatment of injuries

1 7.4.3 ~~9.3~~ COMMUNICATIONS EQUIPMENT/WARNING SYSTEMS

Communications Equipment		
Type	**Location**	**Capability**
Steady siren	222-S Laboratory Complex	Warning to evacuate
Wavering siren	222-S Laboratory Complex	Warning to take cover
Gong (2704-S, MO-291) Chime (222-S, MO-037, 222-SA)	222-S Laboratory Complex	Fire alarm
Continuous ringing bell and flashing light [continuous air monitor (CAM) alarm]	CAMs are located throughout the 222-S Laboratory.	Warning of potential airborne radioactive materials
Crash alarm (200, 300, and 400 Areas) steadily ringing red telephone	Crash alarm telephones are located in Rooms 3-B, 222-S lobby and B1A, and 2704-S hallway.	Emergency notification to personnel
The all clear signal for any of these alarms or signals will be approved and passed by voice by the BED. The public address or crash alarm telephones could be used for this purpose.		
Two-way radios	222-S Laboratory Complex, Room 3-B, 2704S	Communication.
Liquid-level overflow alarms for tanks 101, 102, 104 and the 219-S sumps.	Room 3B and 219-S Operating Gallery	A buzzer and lighted panel indicate that an overflow has been detected in the respective tank within the 219-S.
222-S tunnel sump alarm	Room 3B	A buzzer and lighted panel indicate liquid in a 222-S cold tunnel sump.
222-S tunnel sump alarm	Room S3-D	Hot tunnel sump alarm
Ventilation pressure alarm	Room 3B	A buzzer and lighted panel indicate ventilation pressure outside of operating parameters.
219-S and 222-S exhaust stack alarm	Room 3B	A buzzer and lighted panel in Room 3-B indicate a 222-S stack or 219-S alarm.
Public Address System Telephones	At each land line telephone location in each facility.	Communicate messages to personnel.

2 7.4.4 ~~9.4~~ PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment		
Type	**Location**	**Capability**
Anti-C clothing	Room 3B1	Personnel protection against exposure
Respirators	222-S Maintenance Annex, Room 3E	Personnel protection against exposure

7.4.5 ~~9.5~~ SPILL CONTROL AND CONTAINMENT SUPPLIES

Spill Kits and Spill Control Equipment		
Type	**Location**	**Capability**
Spill cart	Corridors 8B and 8D	Absorbents for spill containment, gloves for personnel protection, and barrier rope.
Spill cabinet	222-SH, east outside wall	Absorbent for spill containment, and barrier rope and signs for isolating the area.

7.4.6 ~~9.6~~ INCIDENT COMMAND POST

The ICPs for the 222-S Laboratory Complex are in 2704-S, Room 22A (primary), and the 222-S Analytical Laboratory, Room 3B. Emergency resource materials are stored at each location. The Hanford Fire Department Mobile Command Unit could be activated by the IC if necessary.

7.5 ~~11.0~~ REQUIRED REPORTS

Post-incident written reports are required for certain incidents on the Hanford Site. The reports are described in DOE/RL-94-02, Section 5.1.

Facility management must note, in the TSD-unit operating record, the time, date, and details of any incident that requires implementation of the contingency plan (Refer to Section 4.0 of this plan). Within 15 days after the incident, a written report must be submitted to Ecology. The report must, at a minimum, include the elements specified in WAC 173-303-360(2)(k).

7.6 ~~12.0~~ PLAN LOCATION AND AMENDMENTS

Copies of this plan are maintained at the following locations:

- 222-S Analytical Laboratory Room 3-B
- 2704-S Room 22A.

This plan will be reviewed and immediately amended, as necessary, in accordance with DOE/RL-94-02 Section 14.3.1.1.

7.7 ~~13.0~~ BUILDING EMERGENCY ORGANIZATION

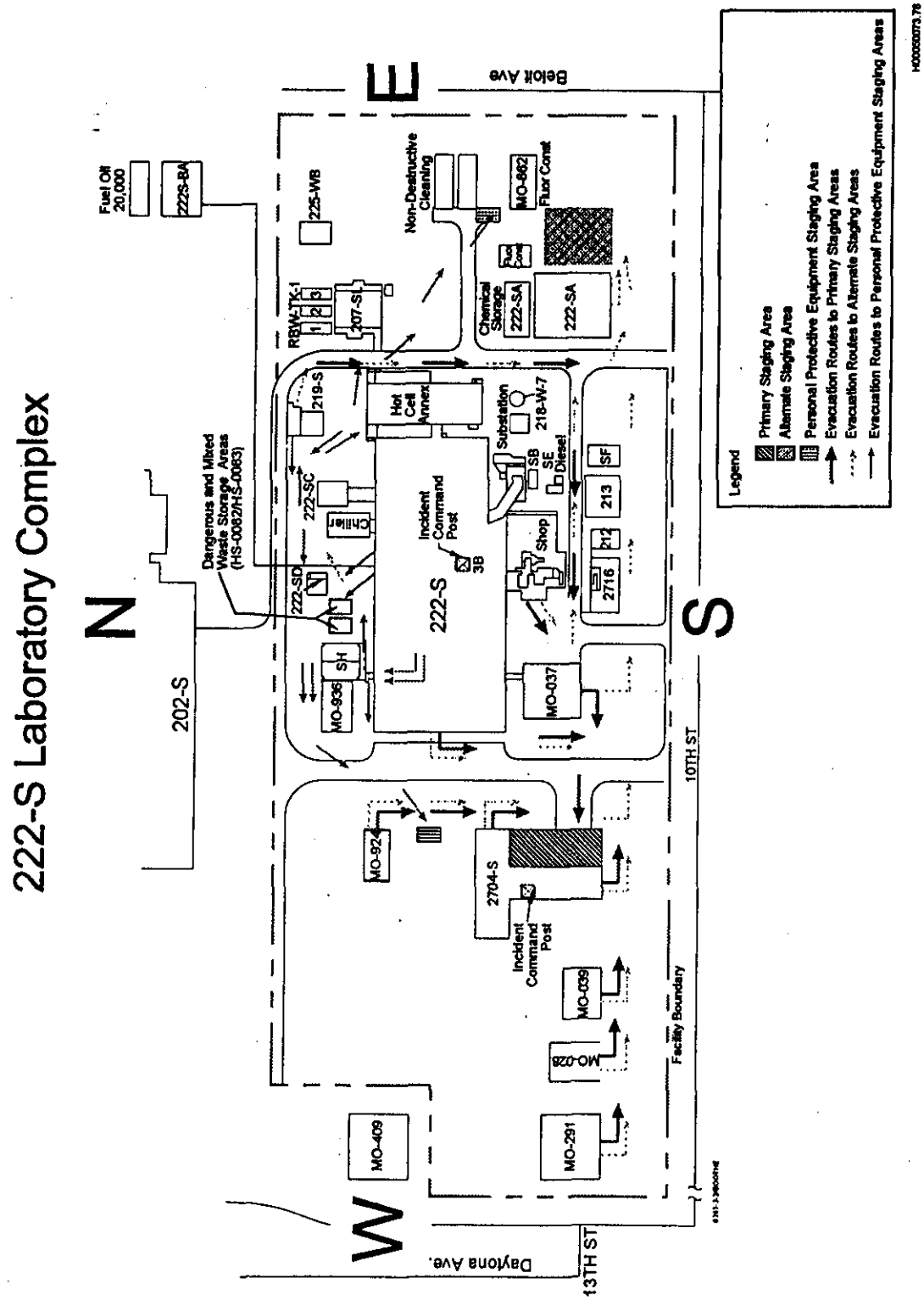
BUILDING EMERGENCY DIRECTOR

Title	Location	Telephone
Shift operations manager	222-S Building/Room 3-B	373-2435

Names and home telephone numbers of the BEDs are available from the POC (373-3800) in accordance with the Hanford Facility RCRA Permit, Dangerous Waste Portion, General Condition II.A.4.

1 **Figure 1. 222-S Laboratory Complex Facility Boundary and Staging Areas.**

2



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~~TABLE~~

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8.0 PERSONNEL TRAINING [H]

This chapter discusses personnel training requirements based on WAC 173-303 and the HF RCRA Permit (DW Portion). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) "an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330" and (2) "a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d)." The HF RCRA Permit (DW Portion), Condition II.C (Personnel Training), contains training requirements applicable to Hanford Facility personnel and non-Facility personnel.

Compliance with these requirements at the 222-S Laboratory Complex is demonstrated by information contained both in Chapter 8.0 of DOE/RL-91-28, Attachment 33 of the HF RCRA Permit, and this chapter. This chapter supplements Chapter 8.0 of DOE/RL-91-28.

8.1 OUTLINE OF INTRODUCTORY AND CONTINUING TRAINING PROGRAMS

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs ensure that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Chapter 7.0~~, Contingency Plan~~. The introductory and continuing training programs contain the following objectives:

- Teach Hanford Facility personnel to perform their duties in a way that ensures the Hanford Facility's compliance with WAC 173-303
- Teach Hanford Facility personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed, and
- Ensure Hanford Facility personnel can respond effectively to emergencies.

8.1.1 Introductory Training

Introductory training includes general Hanford Facility training and TSD unit-specific training. General Hanford Facility training is described in DOE/RL-91-28, Section 8.1, and is provided in accordance with the HF RCRA Permit (DW Portion), Condition II.C.2. TSD unit-specific training is provided to Hanford Facility personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. Hanford Facility personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. Hanford Facility personnel must be trained within 6 months after their employment at or assignment to the Hanford Facility, or to a new job title/position at the Hanford Facility, whichever is later.

General Hanford Facility training: Refer to description in DOE/RL-91-28, Section 8.1.

Contingency Plan training: Hanford Facility personnel receive training on applicable portions of the *Hanford Emergency Management Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] in general Hanford Facility training. In addition, Hanford Facility personnel receive training on content of the

description of actions contained in contingency plan documentation in Chapter 7.0 ~~and Appendix 7.A~~ to be able to effectively respond to emergencies.

Emergency Coordinator training: Hanford Facility personnel who perform emergency coordinator duties in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System receive training on implementation of the contingency plan and fulfilling the position within the Hanford Incident Command System. These Hanford Facility personnel also must become thoroughly familiar with applicable contingency plan documentation, operations, activities, location, and properties of all waste handled, location of all records, and the unit/building layout.

Operations training: Dangerous waste management operations training (e.g., waste designation training, shippers training) is determined on a unit-by-unit basis and considers the type of waste management unit (e.g., container management unit) and the type of activities performed at the waste management unit (e.g., sampling). For example, training provided for management of dangerous waste in containers is different than the training provided for management of dangerous waste in a tank system. Common training required for compliance within similar waste management units can be provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific operations is identified in the training plan documentation based on: (1) whether a general training course exists, (2) the training needs to ensure waste management unit compliance with WAC 173-303, and (3) training commitments agreed to with Ecology.

8.1.2 Continuing Training

Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford Facility training and TSD unit-specific training.

General Hanford Facility training: Annual refresher training is provided for general Hanford Facility training. Refer to description in DOE/RL-91-28, Section 8.1.

Contingency plan training: Annual refresher training is provided for contingency plan training. Refer to description in Section 8.1.1.

Emergency coordinator training: Annual refresher training is provided for emergency coordinator training. Refer to description in Section 8.1.1.

Operations training: Refresher training occurs on many frequencies (i.e., annual, every other year, every 3 years) for operations training. When justified, some training will not contain a refresher course and will be identified as a one-time only training course. The TSD unit-specific training plan documentation specifies the frequency for each training course. Refer to description in Section 8.1.1.

8.2 DESCRIPTION OF TRAINING DESIGN

Proper design of a training program ensures personnel who perform duties on the Hanford Facility related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303. Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to ensure Hanford Facility personnel have received the proper training is to determine and document the waste management duties by job title/position. The second step compares waste management duties to general waste management unit training curriculum. If general waste management unit training curriculum does not address the waste management duties, the training curriculum is supplemented and/or on-the-job training is provided. The third step summarizes the content of a training course necessary to ensure that the training provided to each job title/position addresses associated waste management duties. The last

step is to assign training curriculum to Hanford Facility personnel based on the previous evaluation. The training plan documentation contains this process.

Waste management duties include those specified in Section 8.1 as well as those contained in WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the 222-S Laboratory Complex operations include the following:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Shutdown of operations.

Hanford Facility personnel who perform these duties receive training pertaining to their duties. The training plan documentation described in Section 8.3 contains specific information regarding the types of training Hanford Facility personnel receive based on the outline in Section 8.1.

Additional training elements assigned by Ecology, applicable to the 222-S Laboratory Complex operations, include the following:

- Procedures for safely managing dangerous waste including: inspections; recordkeeping practices for repairs and remedial actions taken as a result of the inspections, labeling, and incompatible waste management.
- Response to spills/releases.

8.3 DESCRIPTION OF TRAINING PLAN

In accordance with HF RCRA Permit (DW Portion), Condition II.C.3, the unit-specific portion of the *Hanford Facility Dangerous Waste Permit Application* must contain a description of the training plan. Training plan documentation is maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the HF RCRA Permit. Therefore, changes made to the training plan documentation are not subject to the HF RCRA Permit modification process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

Documentation prepared to meet the training plan consists of hard copy and/or electronic media as provided by HF RCRA Permit (DW Portion), Condition II.C.1. The training plan documentation consists of one or more documents and/or a training database with all the components identified in the core document.

A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as follows:

1. -330(2)(a): "The job title, job description, and name of the employee filling each job. The job description must include requisite skills, education, other qualifications, and duties for each position."

   Description: The specific Hanford Facility personnel job title/position is correlated to the waste management duties. Waste management duties relating to WAC 173-303 are correlated to training courses to ensure training properly is assigned.

   Only names of Hanford Facility personnel who carry out job duties relating to TSD unit waste management operations at the 222-S Laboratory Complex are maintained. Names are maintained within the training plan documentation. A list of Hanford Facility personnel assigned to the 222-S Laboratory Complex is available upon request.

Information on requisite skills, education, and other qualifications for job titles/positions is addressed by providing a reference where this information is maintained (e.g., human resources). Specific information concerning job title, requisite skills, education, and other qualifications for personnel can be provided upon request.

2. -330(2)(b): "A written description of the type and amount of both introductory and continuing training required for each position."

Description: In addition to the outline provided in Section 8.1, training courses developed to comply with the introductory and continuing training programs are identified and described in the training plan documentation. The type and amount of training is specified in the training plan documentation as shown in Table 8-1.

3. -330(2)(c): "Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received."

Description: Training records are maintained consistent with DOE/RL-91-28, Section 8.4.

Table 8-1. 222-S Laboratory Complex Training Matrix.

	Training Category*					
DOE/RL-91-28 Chapter 8 Training Category	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training		
222-S Laboratory Complex DWTP implementing category	Orientation Program	Emergency Response (contingency plan)	Emergency Coordinator Training	General Waste Management	Container Management	Tank System Management
Job title/position						
Hazardous Waste Operations Manager	X	X		X	X	
Chemical Technologist (Hazardous Waste Operations)	X	X		X	X	
Environmental Compliance Officer	X			X		
Analytical Chemistry Manager	X					
Chemistry Manager	X					
Chemist/Scientist	X					
Chemical Technologist	X	X		X		X
Shift Operation Manager	X	X	X	X		
Resident Waste Service Provider	X			X	X	
Non-Resident Waste Service Provider	X			X	X	

* Refer to the 222-S Laboratory Complex Dangerous Waste Training Plan for a complete description of coursework in each training category.

CONTENTS

~~APPENDIX~~

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11.0 CLOSURE AND FINANCIAL ASSURANCE [I]

This chapter describes the planned activities and performance standards for closing the waste management units in the 222-S Laboratory Complex. The date for closure has not been established. Closure will begin when the 222-S Laboratory Complex waste management units are no longer managing regulated waste.

11.1 CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE [I-1]

The 219-S Waste Handling Facility, 222-S DMWSA, and Rooms 2-B and 4-E storage areas will be clean closed with respect to dangerous and/or mixed waste contamination that resulted from operations. Any portion of a unit unable to be clean closed before 222-S Laboratory Complex decommissioning will be placed in a stable state, protective of human health and the environment, and closure activities will be completed during 222-S Laboratory Complex decommissioning.

Remedial actions with respect to contamination resulting from activities not associated with management of regulated waste in these waste management units are outside the scope of this closure plan.

Clean closure requires decontamination or removal and disposal of all dangerous and/or mixed waste, waste residues, contaminated equipment, soil, or other material established in accordance with the clean closure performance standards of WAC 173-303-610(2). This and future closure plan revisions will provide for compliance with these performance standards. Activities planned to achieve clean closure are presented in the following sections.

As described in Condition II.H.3 of the Hanford Facility RCRA Permit (Dangerous Waste Portion), federal facilities are not required to comply with financial assurance requirements of WAC 173-303-620.

11.2 CLOSURE PERFORMANCE STANDARD [I-1a]

Clean closure, as provided in this chapter, and in accordance with WAC 173-303-610(2), will eliminate future maintenance and will be protective of human health and the environment.

11.2.1 Constituents of Concern

The constituents of concern for the 222-S Laboratory Complex waste management units will be determined at the time of closure based on information provided in Chapter 1.0. Information on waste numbers is provided in Chapter 1.0.

11.2.2 Closure Standard for Metal Surfaces

Closure activities will use a 'clean debris surface' as the clean closure performance standard for metal surfaces. Metal surfaces encountered during closure will include, but not be limited to, tanks, piping, ancillary equipment, tank system secondary containment liners, laboratory hoods (e.g., hood 16 in Room 2B), and 222-S DMWSA structures. Tanks 101, 102, and 104, and the 222-S DMWSA are not expected to be generated as debris. Tank 103 has been pumped, rinsed, and isolated, and will not be decontaminated further. Tank 103 will be generated as hazardous debris and managed at an onsite TSD unit. Piping and laboratory hoods are expected to be generated as debris. Tank system secondary

containment liners could be generated as debris depending on circumstances at the time of closure. This approach is consistent with Ecology guidance (Ecology 1994) for achievement of clean closure.

For metal surfaces, attainment of a clean debris surface will be verified visually in accordance with the alternate treatment standards for hazardous debris (40 CFR 268.45): "Clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area."

Metal surfaces, except piping, requiring decontamination based on visual examination will be decontaminated using an appropriate physical or chemical extraction technology from the alternate treatment standards for hazardous debris (40 CFR 268.45). Chemical extraction methods are not subject to residence time requirements. Piping will be rinsed to achieve a clean debris surface. Before using a decontamination solution on any liner surface or surface having potential contact with underlying soil, the liner or surface must be inspected for cracks or other openings that could provide a pathway to the soil. Any such cracks will be sealed before beginning treatment or other engineered containment devices (e.g., portable catch basins, liners) will be used to collect and contain solutions. Areas of obvious staining, discoloration, cracking, or potential contamination with constituents of concern will be re-evaluated for more rigorous decontamination or removal, designation, and disposal.

Debris, as well as any generated rinsate, will be removed, designated, and disposed at an appropriate onsite location. Removed non-debris matrices not meeting performance standards will be managed as mixed waste unless information exists otherwise.

Piping stored in the T-8 Tunnel will be removed at closure. If technology allows internal inspection of the piping, the piping could be evaluated for a clean debris surface. If technology does not allow inspection of internal surfaces or personnel exposure issues exist, the piping will be managed as mixed hazardous debris and moved to an onsite TSD unit.

11.2.3 Closure Standard for Concrete

The performance standard for concrete will be a clean debris surface based on visual verification. When the performance standard is not met, decontamination of concrete will be accomplished using a physical or chemical extraction technology from the alternate treatment standards for hazardous debris (40 CFR 268.45). Chemical extraction methods are not subject to residence time requirements. Physical extraction methods are not subject to the 0.6 centimeter removal requirement. When a water-based decontamination method is used, the rinsate will be tested for the constituents of concern. The performance standard will provide verification that the levels of the constituents of concern in the rinsate are below health-based levels. The concrete will be examined visually after decontamination. Areas of obvious staining, discoloration, cracking, or potential contamination with constituents of concern will be re-evaluated for more rigorous decontamination or removal, designation, and disposal.

11.2.4 Closure Standards for Underlying Soil

If there are no cracks in concrete overlaying soil, the soil will be considered clean closed. If concrete surfaces are cracked, the concrete will be cored at the crack in the concrete to obtain a soil sample. Clean closure of soil under concrete (the 219-S Waste Handling Facility and the 222-S DMWSA) will require sampling of the soil for constituents of concern. If the soil testing results determine that the constituents of concern are at or below cleanup levels, the soil will be considered clean closed and will not require

remediation. Cleanup levels for soil are defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K.1.

Clean closure of the soil underlying Rooms 2-B and 4-E will be accomplished by demonstrating that there are no pathways for dangerous waste to the underlying soil. Operating records will be checked to verify that clean up of any spills within Room 2-B and/or Room 4-E was performed. Room 2-B is located partly above a tunnel, which is in the basement of the 222-S Analytical Laboratory. The floors of Room 2-B and Room 4-E will be checked for cracks. Any cracks that are found will be investigated.

11.3 CLOSURE ACTIVITIES [I-1b]

At the time of closure, the closure plan will be reviewed and modified, as necessary, to reflect current regulations and information. If it is determined that clean closure is not possible, the closure plan will be modified to address required postclosure activities in WAC 173-303-610.

Clean closure will be accomplished by removal and disposal of all waste present. In addition, process equipment, contaminated structural components, contaminated building surfaces, and contaminated soil attributable to TSD activities will be dispositioned according to Section 11.2.

Equipment or materials used in performing closure activities will be decontaminated or disposed at a permitted facility.

Access to the 219-S Waste Handling Facility, the 222-S DMWSA, Rooms 2-B and 4-E storage areas will be controlled during the closure period. Access will be limited to personnel required to support the closure of the units. All activities will be performed to minimize personnel exposure in accordance with ALARA principles.

11.3.1 Maximum Extent of Operation [I-1b(1)]

The maximum extent of operation for the waste management units is provided in Chapter 1.0.

A portion of the ancillary piping located in the 222-S Analytical Laboratory tunnels was removed from service in 1997. The removal and staging of the high dose drain piping in a shielded staging area in the T8 tunnel within the 222-S Analytical Laboratory was agreed to by Ecology (99-EAP-446). During unit closure, this piping will be designated and managed in an appropriate waste management unit or TSD unit.

A closure was completed on two storage structures previously located at the 222-S DMWSA (Administrative Record, DOE/RL-91-27, Appendix 11A). The structures were clean closed, removed from the area, and replaced with two new storage structures in 1998 (Chapter 2.0). The concrete below the removed structures was not closed. Closure of underlying soil and the concrete was deferred to the closure of the 222-S DMWSA.

~~Appendix 11A contains the following i~~Information for the previously closed and removed storage structures is provided in the Administrative Record, DOE/RL-91-27, Appendix 11A:

- Partial closure plan
- Ecology approval letter
- Professional engineer certification for the partial closure.

With Ecology concurrence, tank 103 in the 219-S Waste Handling Facility was isolated in 1999 (Letter: Moses Jaraysi, Ecology to George H Sanders, DOE-RL, "Re: Change Control Form M-32-98-01,

219-S Construction Upgrade Scheduled Revision, Interim Milestone M-32-02", dated February 11, 1999). Tank 103 is included in this closure plan.

11.3.2 Operations Records Search

Operating records will be reviewed and cognizant operations personnel interviewed to obtain an inventory and spill history for the units undergoing closure. A spill history is necessary to help determine the need for and extent of decontamination necessary for clean closure. The records review will entail a review of all available records related to operations in the treatment and/or storage units. The records review will include operations logbooks, RCRA weekly inspection records, a search for 'offnormal' event reports, and the waste identification data system. Former cognizant operation personnel could be interviewed.

11.3.3 Closure Activities for the 219-S Waste Handling Facility [I-1b(3)]

This closure plan describes the methods of decontamination and equipment removal for the following portions of the 219-S Waste Handling Facility:

- 219-S Waste Handling Facility structure
- Process tanks, piping, and ancillary equipment
- Belowgrade concrete vault structure
- External piping and ancillary equipment
- Underlying soil.

Equipment, piping, and materials that cannot be decontaminated will be removed and transported to an appropriate TSD unit for final disposition.

Clean closure of underlying soil will be based on testing results. If the soil is contaminated above regulatory limits specified in the Hanford Facility RCRA Permit (DW Portion), Condition II.K.1., the contaminated areas will be defined and the soil will be removed. Removed soil will be designated and disposed in an appropriate onsite location.

11.3.3.1 Removing Dangerous Waste [I-1b(2)]

The mixed waste inventory contained within the 219-S Waste Handling Facility will be removed using the existing process equipment and pumps. The mixed waste contained in the tanks will be transferred to an onsite TSD unit for disposition.

219-S Waste Handling Facility Structure

The operating gallery in the 219-S Waste Handling Facility never was used for the processing of mixed waste or the storage of dangerous materials. The 219-S Waste Handling Facility contains equipment and structures, such as the walls and ceiling of the operating gallery, the control panel, and the rinsed caustic tank, that are not expected to have become contaminated because of functional and physical separation from the waste treatment and storage areas. The uncontaminated equipment and structures either will be left in place for future use or dismantled and/or removed as required.

11.3.3.2 Process Tanks, Internal Piping, and Ancillary Equipment

After the waste inventory has been transferred from the 219-S Waste Handling Facility, the tanks and piping will meet the performance standard from Section 11.2.2 to be considered clean closed. Process equipment contained in the sample gallery, pipe gallery, and vault of the 219-S Waste Handling Facility is assumed to be contaminated or potentially contaminated. Equipment in these areas either has been in

contact with the waste or has been in close proximity to the waste. All major equipment used in these areas is listed in Chapter 4.0 and will be removed from the 219-S Waste Handling Facility and disposed.

The process piping in the 219-S Waste Handling Facility will be removed in two stages. During the first stage, the process pipe jumpers will be removed remotely through the vault covers. During the second stage, the hard piping will be removed. Some of the hard piping might be left in place after this process and removed with the associated tanks. The piping removed will be designated and packaged for transport to an appropriate TSD unit for further decontamination, as necessary, and disposal. Piping embedded within the concrete walls of the structure will be left in place until removal of the concrete, and examined, as possible, for a clean debris surface.

The process tanks in the 219-S Waste Handling Facility will be removed in two stages. The smaller pieces of equipment will be removed first, and the tanks will be removed second. The removal of each piece of equipment will be conducted under specific procedures prepared before closure.

11.3.3.3 External Piping and Ancillary Equipment

The pipes between the 219-S Waste Handling Facility and the 222-S Analytical Laboratory are included in this closure plan. In addition, abandoned piping encased in concrete between the 219-S Waste Handling Facility and the 222-S Analytical Laboratory used for TSD activities will be handled according to this closure plan. Abandoned transfer piping leading from the 219-S Waste Handling Facility tanks to the unit boundary (Chapter 4.0, Section 4.1.2) will be closed in accordance with this closure plan. Piping beyond the unit boundary is outside the scope of this closure plan. This piping will be excavated, designated, and disposed at an onsite waste management unit or offsite TSD facility. Pipeline corridor sampling of soil around external piping is discussed in Section 11.3.3.6.3.

11.3.3.4 Belowgrade Concrete Vault Structure

The liners were installed from 1996 through 1998. The liners provide secondary containment for the tanks, process piping, and ancillary equipment in the concrete vault. The liners will be decontaminated, as necessary, before removal to meet the performance standards for metal in Section 11.2.2. All accessible concrete will be inspected visually before any decontamination. The purpose of the inspection will be to identify and map any cracks in the concrete that might have allowed contaminants a pathway to the soil below and to identify areas that potentially are contaminated with mixed waste or mixed waste residues.

Those potentially contaminated areas will undergo decontamination to meet the clean closure standard described in Section 11.2.2. Decontamination residues will be collected, designated, and managed as appropriate. Achievement of a clean debris surface for metal surfaces and clean surfaces for concrete surfaces will be documented on an inspection record.

11.3.3.5 Underlying Soil

The purpose of the soil sampling effort will be to verify that no contamination of the soil occurred or to determine the extent of contamination as a result of the operation of the 219-S Waste Handling Facility.

A sampling and analysis plan will be prepared in accordance with SW-846 standards before performing any soil sampling activities. A data evaluation report will be prepared after completion of the soil sampling activities and receipt of validated analytical results. This data evaluation report will compare the analytical results of the soil samples with the regulatory cleanup levels defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K. This comparison will serve as the basis for a decision on whether or not clean closure could be achieved.

If sample results from a specific area do not meet the clean closure criteria, the constituents of concern that exceed the regulatory cleanup levels will be identified. If further sampling is performed at this location, analysis will be limited to only these constituents. If the area of contamination is localized and accessible, the contaminated soil will be remediated or removed. Remediation or removal of soil will be followed by additional verification sampling to determine the effectiveness of the remediation or removal. The number of samples collected will depend on the areal extent of contamination encountered. If soil testing results are greater than clean up levels stated in Section 11.2.7, the concrete will be removed as debris and the soil will be remediated.

11.3.3.5.1 Sampling Soil Under Concrete

All concrete surface areas will be inspected visually to identify cracked areas and other areas of potential contamination. Cracked areas will be mapped, and sampling in these areas will be biased to include the soil beneath cracked areas. If the belowgrade concrete vault structure will be left in place, the concrete will be cored and samples of the underlying soil will be collected for testing of constituents of concern. In addition to soil under cracked areas, any potential migration pathway through the concrete and liner, such as seams and expansion joints, will be taken into consideration when determining the exact soil sample locations.

11.3.3.5.2 Sampling Soil Around Structure

The soil surrounding the 219-S Waste Handling Facility is relatively porous, as is most of the soil on the Hanford Facility. However, if contaminants are present, the contaminants are unlikely to move substantially below the soil surface, because average annual precipitation is low [approximately 15.9 centimeters per year (DOE/RL-91-28)]. No liquid discharge has occurred in the vicinity of the 219-S Waste Handling Facility. Thus, it is assumed that any contaminants released to the soil likely would not migrate down through the soil column, but rather would be held in the upper soil profile. If indications of liquid discharges are identified, a sampling and analysis plan will be developed based on the data quality objectives process.

11.3.3.5.3 Sampling Soil Around the External Piping

In conjunction with piping removal, the excavated soil and pipe trench will be sampled and tested for contamination by constituents of concern. Soil sampling is expected to occur along the length of the pipe corridor trenches. Sampling might include both random and authoritative sampling. The deepest parts of the trenches, as well as concrete joints, are assumed to be the areas that would have the highest level of contamination. Therefore, soil in the bottom of the excavated pipe trench will be sampled during the soil sampling effort.

11.3.3.5.4 Quality Assurance

During closure activities, samples will be collected and analyzed in accordance with quality assurance and quality control guidelines contained in SW-846 to ensure representative and reliable results. The validity of both sampling and laboratory analytical methods will be assured so the data from sampling activities can be used to accurately assess the presence or absence of contamination at the units.

Field duplicate, equipment blank, and trip blank samples will be analyzed as a check on field sampling methods, cross-contamination of samples, contamination from sample handling, and laboratory contamination. Analytical methods will be standard methods (e.g., SW-846) whenever possible and will include analysis of check standards, duplicate samples, spike samples, and method blanks. The results of the sampling and analysis program will be subjected to statistical analyses.

11.3.4 Closure Activities for the 222-S Dangerous and Mixed Waste Storage Area [I-1b(3)]

Closure of the 222-S DMWSA will require removal of all waste inventory, decontamination or removal of the storage structures, the concrete pad, and closure or removal of the underlying soil.

11.3.4.1 Removing Dangerous Waste [I-1b(2)]

As a first step of closure, all containers of waste will be removed from the storage structures. The containers of waste will be transferred to another permitted onsite TSD unit or shipped to a permitted offsite TSD facility.

11.3.4.2 Decontamination of the Structure

Clean closure of the 222-S DMWSA will require that the storage structures meet the clean closure performance standard in Section 11.2.2 and be removed to allow assessment of the concrete and underlying soil per Sections 11.2.3 and 11.2.4 respectively.

11.3.4.3 Concrete Pad

After removal of the storage structures, the concrete will be evaluated in accordance with Section 11.2.3. The purpose of the inspection will be to identify and map any cracks in the concrete that might have allowed contaminants a pathway to the soil and to identify areas that potentially are contaminated with dangerous waste or dangerous waste residues. The inspection will be documented on an inspection record. This process will be repeated at the previous 222-S DMWSA location.

11.3.4.4 Underlying Soil

If, based on evaluation of the concrete pad, there is a possibility of contamination of the underlying soil, the soil will be sampled. The purpose of the soil sampling effort will be to verify that no contamination occurred as a result of operations. Soil sampling will occur after removal of the concrete pad.

A sampling and analyses plan will be prepared in accordance with SW-846 standards before performing any soil sampling activities. A data evaluation report will be prepared after completion of the soil sampling activities and receipt of validated analytical results in accordance with DOE/RL-91-28, Section 3.5.2. This data evaluation report will compare the analytical results of the soil samples with the regulatory cleanup levels defined by the Hanford Facility RCRA Permit (DW Portion), Condition II.K. This comparison will serve as the basis for a decision on whether or not clean closure can be achieved.

If sample results from a specific area do not meet the clean closure criteria, the constituents of concern that exceed the regulatory cleanup levels will be identified. If further sampling is performed at this location, analysis will be limited to constituents of concern exceeding cleanup levels. If the contamination is localized and accessible, the contaminated soil will be remediated or removed. Remediation or removal of soil will be followed by additional verification sampling to determine the effectiveness of the remediation or removal.

11.3.5 Closure Activities for Room 2-B and Room 4-E Storage Areas [I-1b(3)]

Closure of Room 2-B and Room 4-E will require removal of all waste inventory, removal of equipment associated with waste management activities, and decontamination of the room. As a first step of closure, all containers of waste will be removed from the storage area. The containers of waste will be transferred to another permitted onsite TSD unit or shipped to a permitted offsite TSD facility.

After removal of any waste and equipment associated with waste management activities, visual assessment of the room will be performed. Room surfaces will be evaluated in accordance with Sections 11.2.2. and 11.2.3.

Clean closure of the soil underlying Room 2-B or Room 4-E will be accomplished by demonstrating that there are no pathways for dangerous and/or mixed waste to the underlying soil. All mixed waste stored in Room 2-B is stored in secondary containment, which prevents spills from reaching the floor. Room 2-B is located partly above a tunnel in the basement of the 222-S Laboratory Complex. Mixed waste stored in Room 4-E is stored in secondary containment when the waste contains free liquids, is ignitable, or is reactive. All concrete surface areas will be inspected visually to identify cracked areas and other areas of potential contamination. Cracked areas will be mapped, and sampling in these areas will be biased to include the soil beneath cracked areas. If the belowgrade concrete vault structure will be left in place, the concrete will be cored and samples of the underlying soil will be collected for testing of constituents of concern. In addition to soil under cracked areas, any potential migration pathway through the concrete and liner, such as seams and expansion joints, will be taken into consideration when determining the exact soil sample locations. The ceiling of the basement room will be checked for staining that might indicate that a leak of dangerous and/or mixed waste occurred.

11.4 MAXIMUM WASTE INVENTORY [I-1c]

The maximum inventories for the treatment/and or storage units of the 222-S Laboratory Complex are based on information contained in Chapter 1.0.

11.5 SCHEDULE FOR CLOSURE [I-1f]

A date for closure of the 222-S Laboratory Complex waste management units has not been determined. Because use of the 222-S Analytical Laboratory is required for environmental restoration activities, a date for closure of the 219-S Waste Handling Facility, the 222-S DMWSA, and Rooms 2-B and 4-E storage areas depends on the schedule for these activities. When a definite closure date is established, the closure plan will be reviewed and a closure schedule submitted to Ecology.